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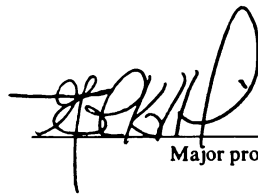


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**Factors Influencing Variations  
in Police Budget Allocations  
Among Cities**  
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Rodney Layne Witt

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FACTORS INFLUENCING VARIATIONS IN POLICE  
BUDGET ALLOCATIONS AMONG CITIES

By

Rodney L. Witt

A DISSERTATION

Submitted to  
Michigan State University  
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# ABSTRACT

## FACTORS INFLUENCING VARIATIONS IN POLICE BUDGET ALLOCATIONS AMONG CITIES TITLE

By

Rodney L. Witt

Researchers from various disciplines have conducted numerous studies attempting to identify those factors influencing governmental expenditures for different functions. However, the majority of these studies have limited utility for the criminal justice researcher in that few have been directly concerned with criminal justice functions, and fewer still have specified their underlying conceptual model accounting for the linkages between the independent variables and the dependent variables of various measures of program allocations.

This study first adapts a systems model of the policy making process which is based on the two constructs of time ordering and narrowing. Justification is then provided for the focussing on the particular stage of the model concerned with socioeconomic influences. After a review of the literature a number of factors believed to be of particular relevance to municipal police budgets are selected for further examination and testing. The variables include the crime rate, city population, per capita income, population density, population growth 1970-80, percent of owner occupied housing, and percent of the population age sixty-five and

over. A theoretical model is then developed which details the linkages between these variables and the two measures of police funding; per capita expenditures for the police and percentage of the budget allocated for the police. The utility of this conceptual model in accounting for differences in police funding among cities is then tested through the use of regression analysis and stepwise regression analysis.

The results obtained from this indicate that the selected variables are able to account for a substantial amount of the variance among cities in the per capita expenditures for police, but relatively less of the variation in the percentage of the budget allocated to the police. Of particular importance in explaining per capita police expenditures were the crime rate and per capita income. Evidence was also examined to indicate that a relationship exists between these two variables.

The final section set forth a possible research plan and several hypotheses for examination by future studies, as well as examining the practical considerations arising from this effort for police administrators.

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## CHAPTER I

"No sooner do you set foot upon American ground than you are stunned by a kind of tumult; a confused clamor is heard on every side, and a thousand simultaneous voices demand the satisfaction of their social wants. Everything is in motion around you; here the people of one quarter of a town are met to decide upon the building of a church; there the election of a representative is going on; a little further, the delegates of a district are hastening to the town in order to consult upon some local improvements; in another place, the laborers of a village quit their plows to deliberate upon the project of a road or public school. Meetings are called for the sole purpose of declaring their disapprobation of the conduct of the government; while in other assemblies citizens salute the authorities of the day as the fathers of their country (DeTocqueville, 1840: 249)."

### Introduction

DeTocqueville's observations on the democratic political process are as accurate now as when they were written over a century and one-half ago. Now, as then, American politics is a dynamic, tumultuous process, full of passion and feeling, noisy with the din of competing factions striving to assert the ascendancy of their particular ideas, philosophies, and claims to legitimacy. Yet, from all this clamor and apparent disorder emerges order, a formal expression of collective agreement to be confirmed and implemented through governmental action. In one aspect or another it is this perpetually ongoing transition from public conflict to public harmony, from political disagreement to political agreement,

from individual demands to collective action which has formed the grist for numerous social science researchers.

That scientific inquiry into the workings of the political process may be of value is undeniable. Stripped of all pretense and artifice politics is the mechanism by which the finite resources of our society are apportioned. And, in a nation of partisan interests so numerous and varied as to almost defy taxonomy, with each vocally championing their favored cause, the political system is the mechanism responsible for reconciling the competing calls for recognition so that all may feel that their message has been given fair hearing and continue to acknowledge the legitimacy of the process. As noted by Dye, "The legitimacy of the democratic form of government.....is based on the assertion that this mode of decision making maximizes opportunities for the individual's participation in the formation of public policy (Dye, 1966: 300)."

If politics is the glue binding our society together, then the illumination of political reality can only serve to strengthen that bond. But to be of real value in the achievement of that end, scientific inquiry cannot rely on the mere compilation of factual information alone, but must progress beyond that point to the forging of an organized body of theory. For it is theory which provides the ability to classify and assess the significance of factual information. In addition, and particularly when dealing with the type of subject matter composing the stuff of politics,

this theory must not be moral and prescriptive in kind, but rather empirical and descriptive lest the danger be encountered of incurring into the province of ideology (Ryan, 1972: 86).

Satisfaction of this ideal as it relates to the political process is a demanding and arduous undertaking posing several uniquely formidable barriers. First among these impediments is the reality that while the structure through which the process is enacted at any one time is a relatively manifest phenomenon, discernible to the knowledgeable observer, it is also one of ephemeral and constantly shifting relationships coalescing and dissolving according to the demands of the moment. Consequently satisfaction of the demand for theory based on empirical evidence cannot be realized through a search for immutable constants. Instead, "Empirical significance requires that the propositions of social science, rather than affirming unqualifiedly universal invariances, state relations between variables assuming different magnitudes in different social contexts (Lasswell and Kaplan, 1950: xxi)." Accordingly theoretical inquiry into the political process must be guided by the principle of situational reference which demands precise specification of the nature of the contextual circumstances. Assuming that the situational context is amenable to specification a second issue must be addressed.

Eulau and Eyestone (1968) have offered a model of policy making which specifies contextual variables such as

city size, economic conditions, etc., viewed as antecedent variables; decision makers policy orientations seen as intervening variables; and policy outcomes designated as consequent variables. While the antecedent variables, as well as the actual structure, mechanisms and operations of the process are discernible through observation, less readily apparent are the underlying motivations upon which the participant's actions are based, what have already been designated as the decision makers policy orientations or antecedent variables. The key distinction here being one of *why* political men act as they do rather than the *how* of their actions. This distinction moves the inquiry into the realm of the intervening psychological variables, values and beliefs arising from individual cognitive processes. Inquiry at this level is more problematical in that such processes are largely invisible and unknown to the observer. And, attempts to directly quantify and interpret such psychological variables are dependent upon identification of relevant actors, their ability to understand the complex web of often conflicting influences underlying their actions, the weighting given to each, and their ability to articulate them to the researcher. Taken as a whole these suppositions pose a series of severe methodological barriers.

An alternative approach to an investigation which must necessarily take into account the psychic properties of man is a variant of the "black box" technique which has been employed in science and engineering. This "....involves the

treatment of a complex structure as a single undefined entity; the behavior of the total system is observed under varying stimuli and the results are recorded and measured (Meehan, 1965: 198)." As the technique applies here, the political process is conceptualized as being one in which actors exist within, and form interrelations with, an external social environment. Conditions from that social environment stimulate the psychological processes of the actors, resulting in a corresponding response. Thus, given this relationship a theory of the factors influencing the political decision making process might theoretically be constructed by identifying specific environmental stimuli and socioeconomic characteristics of those involved, observing which political responses seem to occur in their presence and treating the intervening psychological processes of the participants as a black box entity.

Although approaching the problem in this manner minimizes one set of methodological issues it also presents its own unique set of problems, although of a type which appear to be more nearly accessible. These problems fall into three major areas of concern. The first concern relates to the principle of situational reference. If, as is being suggested, an inquiry is to employ environmental and socioeconomic factors as independent variables, great precision must be exercised in the specification of the context in which those factors occur and the causal chain through which they are related to the political outcomes.

Secondly, as is also implied, if political outcomes are identified as being the dependent variables it is then imperative that they be defined in such a manner as to allow accurate quantification so that variances in their magnitudes can be weighed against changes in those of the independent variables. Finally, use of the black box technique does not totally relieve the researcher of the responsibility for developing at least a plausible theoretical justification for its use. The remainder of this chapter will deal with satisfaction of these concerns, leading to the presentation of a research question broadly concerned with the relationship between socioeconomic variables and particular political outcomes.

#### Specification of Political Outcomes

Governance is defined as the process by which a part of the community gives direction to the collective affairs of the whole (Eulau and Prewitt, 1973: 18). Government is the aggregate set of rules, procedures and institutions through which governance is practiced. The ultimate outcome of governance, as determined by government, is a wide class of decisions generally denoted as policy.

Decisions in general have been alternatively classified according to their complexity, routineness and temporal implications. Applying these criteria, those which are the most complex, require the most information and whose outcomes have implications over the longest period of time are denoted

as policy decisions (Bauer and Jergen, 1980). Among the diverse governmental policy decisions meeting these criteria, further distinctions can be made according to policy making which determines goals and objectives, policy as the development of procedures and guidelines for the accomplishment of goals, routine administration which applies previously formulated policies, and, ad hoc decisions without ramifications beyond the instant event (Katz and Kahn, 1978).

Application of Bauer and Jergen's standards finds that the third category differs from true policy formulation, being composed of small decisions which only implement existing policy. Likewise the fourth category, lacking a future orientation by having no consideration of implications beyond the present, cannot be considered as being true policy making (Ibid). Based upon the magnitude of their consequences for society, the remaining two categories then describe those types of original decisions advanced as being examples of instances where it is most important that the political process provide ample opportunity for widespread participation in determination.

Although governments make a number of different choices which meet these criteria for policy decisions, several types seem to be of a more fundamental nature, that is having broader ramifications in both space and time, than others. A basic example of such essential decisions are those dealing with the allocation of scarce resources, commonly denoted as budgetary decisions. As pointed out by Wildavsky (1964: 4):

If politics is regarded in part as conflict over whose preferences shall prevail in the determination of national policy, then the budget records the outcomes of this struggle. If one asks, 'Who gets what government has to give?' then the answer for a moment in time is recorded in the budget. If one looks at politics as a process by which the government mobilizes resources to meet pressing problems, then the budget is a focus of these efforts.

These characterizations of the underlying issues and purposes inherent within the budget reflect a more modern interpretation of the purposes of that document. For many years the budget was more narrowly construed as being only a financial document giving proposed expenditures and projected revenue for a specified period of time. This typified beliefs of an earlier era which saw government as a necessary evil and one whose spending powers were to be sharply controlled. In large part such beliefs, particularly as they pertained to the federal government, were carried over from our English heritage and incorporated the traditional mistrust of the English people of a strong executive. Reflecting this, early Congresses took measures to curtail the executive office and to confine its powers to those of a ministerial nature. The budget was a primary means by which this was accomplished through use of a multitude of narrow line items specifying exactly those purposes for which monies could be spent (Lee and Johnson, 1977).

More recent reforms in American budgeting reflected our own experiences with governance and were largely a product of events occurring at the local rather than federal level. These reforms were largely motivated by problems of



corruption which was rampant in most large American cities around the turn of the century. "In many municipalities 'boss rule,' graft, and corruption had proceeded to the point where it was extremely difficult to carry on transactions with government on a rational basis. Particularly in the awarding of construction contracts and in government purchasing, a reform looking toward a 'business like' basis was necessary if others than the 'insiders' were to be able to sell materials and supplies to municipalities (Burkhead, 1956: 15)."

The focus was then changed to one concerned with an increase in the efficiency of government so as to deal with that corruption, rather than remaining concerned with the curtailment of executive power. Such reforms were strongly influenced by the social contract theory dominating political thought at that time (Lynch, 1979). Reformers believed that a strong executive was needed so that voters might be able to elect somebody with the power to carry out their wishes, thereby strengthening democracy. To accomplish this executive leadership was to be institutionalized and budget reform was believed to be one of the best ways to accomplish such an objective. As observed by Cleveland and Buck (1920: 102), "The atmosphere of democracy must be filtered and made to flow into useful channels by the power of leadership which may be made accountable."

Beginning roughly with the New Deal and continued after World War II thought concerning the budget gradually came to

view it as an expression of the link between financial resources and human behavior intended to accomplish policy objectives (Wildavsky, 1964). This social orientation was further given impetus by the recommendations of the Hoover Commission, appointed in 1947 by President Truman, which, among other points, called for a budget based on functions, activities, and projects, called a performance budget be adopted.

Consequently, as the role of government began to include new goals governmental spending came to be accepted as a legitimate vehicle for the promotion of "positive" social values. Concomitantly the budgeting process also changed to accommodate those values, with the underlying philosophy moving from one of sharp containment of government through spending limitations, to one based on governmental spending as a tool to accomplish a wide range of social goals. Relatedly the narrow emphasis of budget control shifted to a more management oriented focus concerned with the efficient performance of the work (Schick, 1966). Still later thinking extended the trend to explicitly acknowledge the policy making nature of the budget and characterized it as being "...the selection of ends and the selection of means to achieve those ends....Public budgeting links the political and economic systems (Lee and Johnson, 1977: 1)." This stage then culminated in the rise of PBB with its inherent emphasis on planning with its inherent concern on goals and objectives (Schick, 1966).

The important point to be taken from this historical overview concerns the transition of the budget from a purely financial document showing income and expenditures to the budget as an instrument of policy, a concrete and quantified expression of the values and priorities placed upon specific social goals. The relevant implication being that the budget may now, at least arguably, be conceptualized as representing an important set of measurable surrogate indicators of collective public demand expressed in the form of a political output. The conceptualization of fiscal indicators as a measure of policy output, and indirectly as citizen preferences, is also consistent with a good deal of research over the past two decades.

Although the demand for services is at the level of the individual, the use of what is a collective demand criteria has been employed by a number of researchers, and while not totally satisfactory appears to be reasonable (Godwin and Shepard, 1976). The advantages of this approach are best summarized by Clark (1973) as being their basis in a system consistent across categories and to a somewhat lesser degree across jurisdictions and time, the fact that they are cardinal measures, and the inadequacy of other performance measures.

However, the character of this translation running from individual wants, to agreed upon public demand, to political budgetary outcomes is of an indirect rather than of a direct nature. For that reason if budgetary outcomes are to be

accepted in the context presented here, it is necessary to develop a model of the process which more clearly takes into account the influences of the intervening variables leading to the determination of those outcomes.

### Model of the Political Process

While different forms of government vary according to the level of participation in governance accorded citizens and the level of influence they exercise in the determination of policy, the salient feature of the democratic form is that it theoretically extends to every adult the right of participation in the process. But beginning with the 19th century Italian political theorist Mosca, many observers have noted the presence of widespread societal inequalities resulting in large differentials between the actual abilities of individual citizens to influence the governance process. Finding its fullest expression in elite theory, this school of thought holds that these inequalities are universalistic, and even in declared democratic societies result in division of the populace into two groups; the elite and the mass, or the rulers and the ruled. While posing a difficult problem, especially for liberal democracies, acceptance of the principle of elitism does not in itself preclude the plausibility of democratic forms of government. As advanced by several of the more recent proponents of elite theory, the point is not that elites exist within a democracy, but rather

is a question of their relations with the masses (Lasswell and Kaplan, 1950).

In our society these relations may be conceptualized as linkages between the public and its leaders, which constitute the mechanisms by which the public communicates its wants, needs and demands (Luttbeg, 1968). In addressing the nature of these linkages Katz and Kahn (1968) have observed that the key issues are those dealing with power and control; the means available to the people to check and guide the government. These considerations highlight the importance of widespread participation in the previously defined class of choices which were defined as falling under the general classification of policy decisions. In this sense policy is used as a widely inclusive term for the totality of those important decisions which address government's relations to its environment, and which are manifested in concrete programs and decisions (Eyestone and Eulau, 1968). The budget being the aggregate group of such decisions of interest herein. Having specified budgetary decisions as the particular type of policy decisions to be examined by this inquiry, the principle of situational context now demands that some attention be given to specifying the context in which these decisions occur and the process by which they are arrived at.

Government's relations with the environment, specifically those relating to public participation, differ according to the level at which the policy is made. In part

this is an unavoidable consequence of the increasing distance between those that are governed and those that govern as we progress from local to national government. Yet this factor initially was applicable to only certain major substantive decision areas (for example those relating to the national defense) because of the limited role played by the federal government. A more recent historical development has been the appearance of powerful political trends which have tended to increase the role of the federal government in a number of areas and resulting in a corresponding reduction in the opportunity for public input and control at the lower levels of government.

This trend dates from approximately the 1930s when, as was pointed out, there was a tremendous growth in the size, complexity, and scope of government occurring most noticeably at the federal level. Both a justification and outcome of this growth has been an increasing assumption of power by state and federal governments with a resulting diminution of local control. Policy decisions in such substantive areas as welfare, housing, transportation, etc., which were once clearly the prerogatives of local jurisdictions, are now functionally determined at higher levels of government. Exacerbating this trend as it regards broad based participation has been the concurrent increase in what Lowi identifies as "interest group politics" (Lowi, 1969: 53), where input from highly organized and specialized groups with a direct stake in the outcomes of a particular agency have

come to be identified as being the same or as a direct substitution for more universalistic determination.

The interaction of these two trends have been largely responsible for a fundamental alteration in the role of local government from that of governance to one of management. The significance of this transformation follows from differences in management principles as contrasted to those of governance. Public management is based upon the norms of administrative practice such as hierarchy, control, specialization, efficiency, and professional conduct. These are in direct contradiction with the fundamental norms of democratic control, participation, representation and accountability (Lewis, 1973). The idea that the function of government is to serve the people is being challenged, and instead political analysis increasingly accepts the government's objectives to be bureaucratic in nature, such as expenditure maximization or maximization of the agency (Epple and Zelenitz, 1981). The ascendancy of the managerial function has been at the expense of public debate and the issue-oriented give and take of the democratic political process. Consequently if the budget is to be employed as a surrogate measure of general public demand, and if a model is to be constructed of the process whereby that demand is translated into budgetary outcomes, then it is imperative that a context and subject matter type be selected which minimizes threats to meaningful participation caused by

multiple layers of government and domination by interest group politics.

Because of these problems, this study will be concerned with municipal or city governments. Because this study is concerned with factors which account for differences in the funding of police activities, it would seem wise to select those governmental bodies which afford the greatest opportunity for wide political participation. As used here, political participation is taken in a broader context than merely the act of voting. Rather it is consistent with the modes of political participation distinguished by Verba and Nie (1978), which included voting, campaign activity, communal activity, and particularized contacts.

While the first two activities are self-evident, the latter two need some explanation. Communal activity refers to the act of contacting local officials about social issues, while particularised activity refers to contacting local officials on highly specific problems. It is believed that the relative accessibility of local officials and the frequent urgency of specific problems at the city or municipal level particularly encourages this type of direct participation. Admittedly, it is difficult to measure real influence, but political scientists have measured people's perceptions as to their ability to influence government. Almond and Verba (1964: 110), using a measure they have labeled "subjective political competence," have focused specifically on individual's feelings as to their ability to



influence local political decisions. Using a more refined version of this model, which controlled for the effects of education, Finiftner and Abramson (1975), reported that over 60 percent of the citizens they surveyed rated as having either high or medium feelings of local subjective political competence.

This nearness also reduces the probability of the extensive presence of special interest group politics, used in the same sense as examined previously. Municipal political entities were also selected because many of the issues with which they deal are those which have direct impact upon their citizens, as differentiated from those having a more indirect impact such as decisions concerning issues of foreign policy. Because of this immediacy it is then believed to be more likely that citizens will avail themselves of the direct participatory opportunities available.

Certainly the preceding assumptions are open to criticism. It is apparent that many people are not involved in civic affairs, as it is also equally probable that many local decisions are strongly influenced by the power of organized groups. However, there is a substantive body of research indicating that local policy making is influenced by a highly pluralistic power structure. For example, Scoble's (1961) study of leaders and issues in Bennington, Vermont, indicated that there was no one dominant power structure in the community, but rather a number of structure coalescing around differing decision areas.

Even more to the point are the findings of Martin and Munger (1961) from their inquiry into power in Syracuse, New York. The authors found that first of all the myth that significant decisions in Syracuse emanate from one source does not stand up under close scrutiny. Secondly, that there tend to be as many decision centers as there are important decision areas, which suggest a fragmented decision making power among the institutions, agencies, and individuals clustered about these areas. And lastly, there appeared to be many different kinds of community power, with one differing from another in so many fundamental ways as to make virtually impossible a meaningful comparison. Taken as a whole, these findings seem to justify the selection of cities as the unit of analysis.

Having specified the governmental context to be examined, it is also necessary to focus upon those budgetary decisions relating to a particular policy area. Perhaps one of the few remaining examples in which the local level retains almost absolute sovereignty are those policy decisions encompassing the funding for criminal justice activities. With few exceptions, such as the now defunct Law Enforcement Assistance Administration, criminal justice policy regarding funding by cities has remained almost entirely within the purview of those entities. This relationship becomes even more concrete and direct if only the police alone are considered, where authority is usually fixed in one jurisdiction as contrasted to a possible sharing

of budgetary responsibility such as often occurs with the courts.

With the general contextual situation now defined, attention can be returned to the construction of a model of the political process. From the preceding discussion it may be inferred that this model will be based on an open systems paradigm. Open systems theory emerged after World War II, largely at the impetus of the pioneering work of Ludwig von Bertalanffy. Bertalanffy's primary concern was the growing compartmentalization of disciplines and his work was intended to demonstrate how certain general ideas, centered around the concepts of "systems" could be applied to a wide variety of sciences (Bertalanffy, 1956).

In their most elementary form systems are combinations of parts or components which are interdependently related. The constituent parts of a system may vary from the simple to the complex according to their structure, stability, and degree of reactivity to the other components of the systems to which they belong. These dimensions have been further elaborated by Boulding (1956), who has employed them to classify systems into a hierarchy of nine levels of ascending complexity. Of those currently known to exist, the most complex are social systems consisting of human actors (level 7) plus a shared common social order and culture.

The degree of complexity exhibited by social systems includes the capacity for self-regulation, identifiable input, throughput or conversion processes, output, and

feedback. As Swinth (1974) has pointed out, viewing organizations in this way directs attention toward the importance of the operations, control, and policy centers, as well as the flows between them. For open systems, that is those which are not totally self-contained, these centers are largely concerned with relations to their external environments. Social systems, by their very nature, are open systems and as such must lie exposed to influences originating from other systems in which they are empirically embedded (Easton, 1965). The importance of these relations stems from the fact that open systems are dependent upon their external environments for the provision of inputs and consumption of outputs, which at this level are largely intangible rather than physical in nature.

This dependence highlights other systemic variables which allow social entities to respond to disturbances in the external environments. That the system is open means that it does not simply and randomly engage in environmental exchanges, but rather that certain such exchanges are essential for the system's continued viability, continuity, and ability to change, consequently becoming stable and patterned over a period of time (Buckley, 1967). If disturbances of sufficient magnitude occur which alter the underlying conditions on which those exchanges are based the system may, through dynamic homeostasis, move to a new equilibrium and the exchanges will again become structured through selective mapping or coding and information

processing capabilities (Katz and Kahn, 1978). These interchanges between environment and system may therefore be understood as forming linkages between the two entities in the form of input-output relationships.

Considering these concepts, a political system may be minimally defined as being composed of those interactions through which values are authoritatively allocated for a society (Easton, 1965). Thus, as has been suggested, for a political system to remain viable it must have the capacity to allocate values for the society in which it exists and to induce that society's members to accept those values as binding. For the purposes of analysis the political system can be decomposed into three discrete components. These components are the public in general, government as was previously defined and including elected policy makers, and the linkages connecting the two together. All of which exists within a common external environment. (See Figure 1.1)

The model directs attention toward the means by which the government becomes aware of and responds to disturbances in its external environment. This approach is consistent with one major thrust in the literature which has been concerned with the entire organizational environment. Both Terreberry (1968) and Emery and Trist (1965) have employed systems theory to distinguish between types of organizational environments. Levine and White (1961) have advanced the idea of domain consensus which they believe shapes the organization's environmental interactions. This has been

further refined by Evan (1966) who has emphasized how the organization is faced with various possible sanctions and rewards from external actors composing its role set. Dill (1958) has also developed the concept of the task environment to external actors relevant to the organization.

The model suggests that transactions may be bidirectional, that is originating either from the perceptions of public officials who then make the public aware or beginning with the perceptions of the public who communicate them to their elected officials. Disturbances may be viewed as being transmitted along a set of linkages between government and the larger environment in the form of an input-output relationship. Inputs to the government take the form of demands and supports from the public and external environment which, through the political conversion process, are translated into policy outputs and exported back to the public and external environment. The ramifications of these policy decisions alter existing conditions so that when combined with new disturbances arising from other social systems a different set of conditions is created and the process begins a new cycle. This form of analysis allows an understanding of the political process in dynamic rather than static terms, and focuses attention on phenomenon outside the government which, when communicated through the established linkages, result in the formation of policy. The analysis also brings to the fore two important and related points which relate to the present inquiry; (1) How are demands and

wants recognized and formulated within the body politic, and, (2) how do governmental decision makers translate these demands and wants into policy?

The answer to each of these questions proceeds from the observation that organizations are enacted to accomplish specific goals, and as those goals differ so too will the outputs of the organizations intended to enact them. This infers differential characteristics which may be used to distinguish between various types of collectivities and to group together those with similar attributes and circumstances.

There are at least three major typologies employing this goal directed means of differentiation. Typical of these is Parson's (1969) schemata identifying four possible categories of organizations according to what each contributes to society. The four groups include production organizations engaged in manufacture of consumer goods and services, integrative organization intended to reduce conflict and direct different parts of society in common directions, pattern maintenance organizations which provide societal continuity, and those organizations which are politically oriented in regard to the achievement of societal goals and the allocation of power.

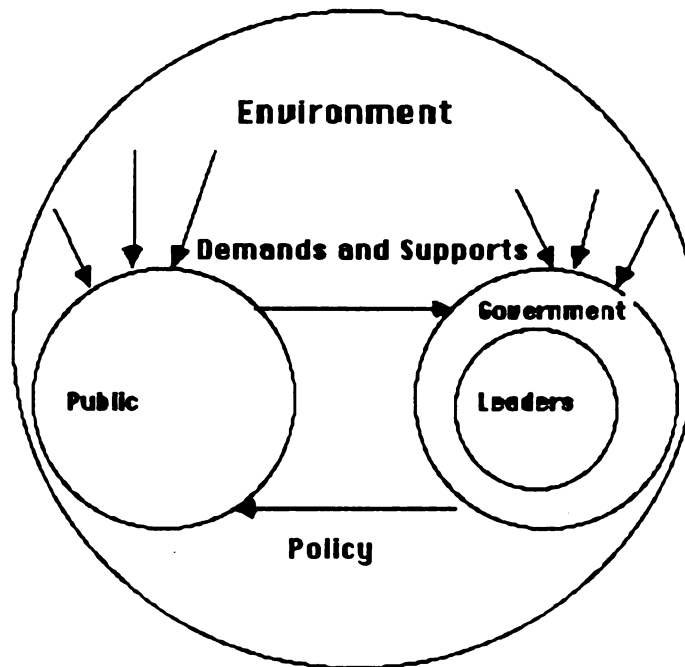


Figure 1.1: A Systems Model of the Political Process

A second goal based typology has been developed by Etzioni (1961, rev. 1975), with categories derived from the cross-tabulation of its two main dimensions. Those dimensions are defined as being the type of power used to make participants comply and the level of involvement by participants in the organization. Organizations are then classified according to where their members fall among the three levels making up the range of each dimension.

A more useful typology which concentrates on the consumption of organizational outputs has been developed by Blau and Scott (1962). Instead of proceeding from the societal level of analysis, it centers upon a single individual level criterion: Who benefits from the organization? Using this criterion four categories of



possible participants are identified; organizational members, owners or managers, clients, or the public at large.

Depending upon which category of participants is identified as being the prime beneficiaries of organizational outcomes division is again made into four possible organizational types; (1) mutual benefit organizations, (2) business concerns, (3) service organizations, and, (4) commonweal organizations.

While each of these groups actively seeks and forms linkages with their external environments, those forming relationships which are the most far reaching and having the greatest impact for society as a whole, are commonweal organizations. It is through these organizations that citizens order their collective affairs and whereby the process of governance is carried out.

Yet, even when confining interest only to commonweal organizations it is apparent that considerable variance in goals, and consequently in relationships, may still exist. For example, military establishments are quite different in their contexts and relations than are state bureaus. As a result further definition and limitation is called for. This may be at least partially accomplished by returning to Etzioni's two criteria of differentiation, which were means of compliance and degree of participant involvement. Using the example given above, peacetime military establishments are characterized by high coercive power and alienation involvement, yielding a classification of what Etzioni termed

a coercive organization. But this is clearly not the category into which an ideal type democratic commonweal organization falls. In order to obtain a more detailed classification of this type of organization, a closer examination of their decision making processes with special attention to means of participant involvement and the enforcement of compliance is indicated.

Dependent upon the societies in which they are embedded for continued support, commonweal organizations must be responsive to and mediate between differing factions with correspondingly distinctive aims and interests. The existence of these interest groups leads to levels of competition surrounding their attempts to impose their preferences upon the total organization. It is at this point that issues of power and control assume importance. The most elemental means of conflict resolution is through the use of power, whereby one group imposes its will upon the others (Tannenbaum, 1962). While this suggests the use of power solely in a coercive fashion, sociologists have distinguished between power based on coercion, ability to reward, perceptions of legitimacy, preference or identification, and expertise (French and Raven, 1960). These different bases of power all imply instances where coercive power alone is not acceptable. In democratic societies the governance process derives its legitimacy from the opportunity it affords the public for input, indicating that input is an ultimate goal in itself,

and as such is not compatible with decision making derived solely from coercive power.

Thompson and McEwen (1958) in their examination of organizational goal-setting as an interactive process note that strategies for dealing with the external environment may be broadly classified as being either competitive or cooperative. The cooperative strategy is then further articulated into sub-types of bargaining which is the negotiation of an exchange agreement between two or more organizations, co-optation defined as bringing external leaders into the organizations hierarchy in order to avoid external threats to stability or existence, and coalitional arrangements designed to unite the organization with others in pursuit of a common purpose. In their goal setting or policy making functions commonweal organizations most closely conform to the various cooperative strategies depending upon the situation.

Consistent with this, Cyert and March (1963) have provided a widely accepted alternative description of organizational decision making. Here goal determination approximates a political process undertaken through negotiations between members of dominant coalitions. Where no one coalition has the power to impose its goals upon the others inducements are offered in exchange for support of one group's preferences. This reconciliation of differential interests through bargaining, accommodation, and mutual interest forms the foundation of our democratic political

process. Under these conditions the only practical test for the legitimacy of the governance process is its capacity for generating agreement and consensus. As stated by Blau (1964: 199);

Stable organizing power requires legitimation. To be sure, men can be made to work and obey commands through coercion, but the coercive use of power engenders resistance and sometimes active opposition. Power conflicts in and between societies are characterized by resistance and opposition, and while the latter also occur within organizations, effective operations necessitate that they be kept at a minimum there and, especially, that members do not exhibit resistance in discharging their daily duties but perform them and comply with directives from superiors willingly. Only legitimate power commands willing compliance.

This does not preclude the use of other means for gaining the desired consensus such as the media and propaganda, but points out that limits of conduct are circumscribed by expectations inherent in the process. As acknowledged by Laswell, "Where human dignity is taken seriously, a long-run objective is to allow the civic order to expand as the public order recedes, since persuasion, and not coercion, is the strategy most consistent with the long-range goal (Laswell, 1977: 119)." This also differentiates between the type of special interest groups referred to in an earlier passage.

Acceptance of this view of the governance process highlights one important set of variables dealing with participation and coercion, but does little to detail others such as the relationships between means and ends as emphasized by the rational positivist school of political

thought. Taken to its extremes this perspective implies that rationality plays little part in goal setting or attainment, and that the process is one dictated more by circumstances, accommodations and power. This concern can be addressed from two directions.

The first of these follows from the various manners in which rationality may be defined. Rationality is used here in an instrumental sense and pertains to the extent to which specified actions actually bring about desired outcomes (Mannheim, 1950; Thompson, 1967). It then may be interpreted as referring to the implementation of goals and not their selection. If one goal of democratic commonweal organizations is accepted as being the creation of consensus, the political model is a rational means of implementing that goal. Participants do not have to be specifically intend this as a goal, or even be aware of it as a goal. Its presence may be latent and still provide the grounds for reasonableness and rationality (Simon, 1978).

The second approach for examining rationality also applies for the need for creation of consensus upon governmental policies, and by inference participation in governance. Such consensus implies an agreed upon standard against which competing claims may be weighed and evaluated. If society had but a single goal, disagreements could only occur around the best means to reach that accepted end and would not be subject to empirical testing as a method for arriving at the facts of a given situation (Berlin, 1962).

But where there are many groups advocating different ends, selection becomes a matter of value judgement. The critical distinction here lies in the difference between facts and values. Facts may be distinguished from values in that the former are descriptive statements describing and defining a relationship as an assertion of truth. In contrast, values must be expressed as moral judgements, preferences, criteria, or ends/means (Davidoff and Reiner, 1962).

By their nature values are not subject to empirical verification or analysis and therefore cannot be used to establish fact or command agreement (Lindblom, 1968). This difficulty may be resolved by a closer examination of the definition of rationality. One accepted view sees rationality as encompassing two distinct but interrelated concepts: (1) a model of decisions where goals are defined at the onset, and where alternative courses of action are then evaluated in terms of their appropriateness for achieving given ends, and, (2) an aspect of decision making where means are separated from ends and the evaluation of the former is an instrumental objective process (West, 1983: 326). Accepting the goal of individual participation, it is apparent that rationality in the former sense may be attained. However, rationality in the latter sense may also be achieved.

Lacking an absolute standard for resolution such as religious doctrine, kingly divine right, or the profit motive as in the private sector, one alternative is to invest the process itself with a superordinate value which provides the

standard for evaluation. A shift then occurs from evaluation of goals as relevant criteria, to the means utilized in arriving at those goals. The concept of rationality is in and of itself a valued social ideal with wide secular acceptance (Parsons and Smelser, 1965). By casting the process as being based on rationality alone it is possible to reconcile conflicting interests through their acceptance of the process rather than on its ultimate outcomes.

This discussion has allowed us to develop a framework for understanding how the political process functions within a particular type of organization, in this case the subset of commonweal organizations identified as city and municipal government. It has also postulated that the process is characterized by a high degree of group formation, that the process is as important as its ultimate outcomes, and that participation is based on a combination of high normative power and moral involvement. While this clarifies many of those variables governing the actions of the political entity and the involvement of the public, it does not address the linkages between governmental decision makers and the public through which demands, supports and the corresponding policy decisions are communicated. Building upon the coalitional consensus view of politics and political decision making which the previous discussion advanced, this question will now be examined.

The nature of the linkages binding government and citizens together raises a number of critical issues. Among

these is the ability of the governmental system to become aware of and react to external changes, and therefore its ability to survive, which in turn is dependent upon the capacity of the linkages to convey appropriate information in a timely and accurate fashion. In a purely democratic society, one in which the citizens and government are functionally the same, only linkages to the larger environment are necessary. But for representational democracies linkages must be established to communicate the desires of the public to their leaders and the actions of the leaders back to that public.

Review of the literature finds a number of alternative types of possible arrangements, which have been grouped by Luttbeg (1968) into five inclusive models. Designed to clarify the different means and degrees by which leaders address the preferences of the public, the key variables utilized to distinguish between the different models are the degree to which the leader acts upon his/her own personal preferences as opposed to perceptions of the public's preferences, and secondly, if coercive means exist by which the public can influence the leader's decisions. While the present intent is not to comment on each of these individually, some elaboration is necessary of what is identified as the "pressure groups" model which seems most applicable to the model developed to this point.

The basic premise of the pressure groups model is that few individual opinions exist apart from those of the group,



and all opinions of importance to the political process are either the product of a group or expressed by groups. This reduces the need for political representatives to consider individual preferences in policy determination and instead allows them to respond to coalitions existing within the general public. Conversely, because members of the group cannot directly make policy themselves, they must act through their elected governmental leaders.

The pressure groups model further hold that the freedom of governmental leaders to act on their own preferences, when different from the public's preferences, is strongly constrained by their desire for reelection. Although the exact degree of latitude leaders have in the formulation of policy is debatable, and indeed other models suggest a greater degree, acceptance of this model allows us to hold constant both the linkages linkage and governmental subcomponents of the political model while examining public preferences as operationalized through policy.

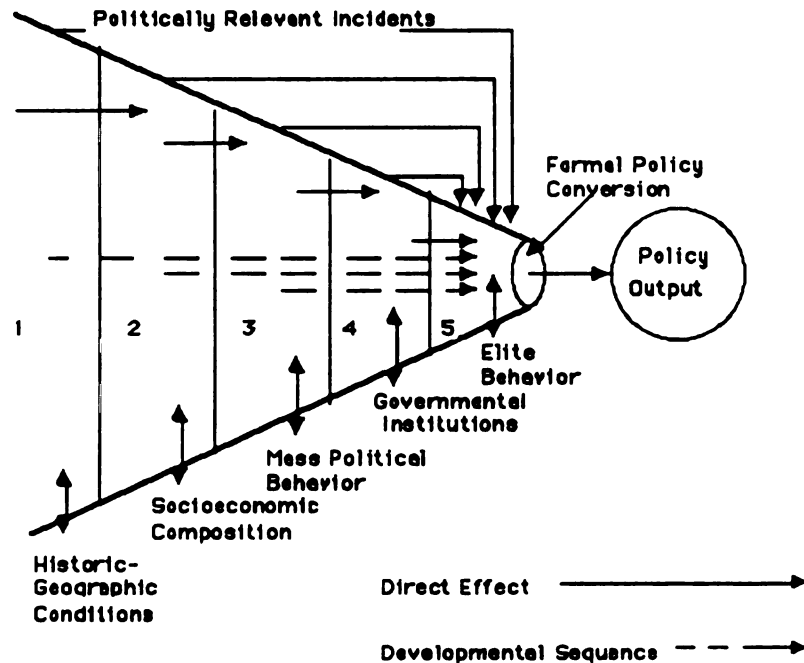
### Factors Influencing Policy

As was illustrated in Figure 1 the public's demand and support for any given policy is influenced by a combination of factors impacting upon it from the external environment operating in conjunction with individual psychological characteristics. Holding the political linkages constant, it should then be possible to identify differences between

environments influencing the public, and between certain characteristics of groups composing the public, which would be associated with a given level of funding for a particular policy. Such differences would become apparent in the comparison between a number of cities on the basis of their environments, attributes of their citizens, and funding levels for police services.

In its most inclusive sense the environment has been defined as being the aggregate of all influences and external conditions which affect the life and development of an organism, etc., such as human behavior, society, etc.. Working from this general definition it is apparent that the political policy making environment can be broken down into a number of subcomponents, and those most relevant to the instant problem selected. While several authors have attempted to do this using combinations of individual variables such as constituency preferences and decision maker's attitudes (Zeigler and Jennings, 1974), and demographic variables and decision makers attitudes (Eulau and Prewitt, 1973), most have not gone beyond this to develop a general conceptual framework of the different classes of variables influencing the political policy making process. Nor, have they specified the ordering of the causal variables. One model which addresses these issues has been developed by Hofferbert (1974) and later modified by Mazmanian and Sabatier (1980), and is presented in Figure 1.2.

Referring to the model it may be seen that two constructs are employed; time ordering and narrowing. Conditions which trigger the decision making process proceed from the broadest category of historical/geographical conditions through the following stages, to emerge as a public policy output. As the process nears the formal policy conversion stage the narrower become the range of variables or actors which may influence it. Also implied is a time ordering of variable classes into a sequence with historic/geographic conditions influencing socioeconomic composition, which in turn influences mass political behavior, etc.



Source: Hofferbert (1974, Figure VIII-1: 228).

Figure 1.2: A Systems Model of Policy Environments

While the construct of ordering as applied to the categories of variables designated here is relatively straight forward, some further elucidation of the sequential relationship between the categories may be instructional and serve to avoid future misinterpretations. The first division of the model shows contemporary policy makers are never confronted with a clean slate but, instead their decisions conditioned by both history and geography. Hofferbert (1974: 229) speaks of Massachusetts and how the proximity of the ocean to that state has created circumstances meaningfully different than those occurring in Helena, Montana.

The ocean...was the thoroughfare that brought to the port of Boston successive waves of immigrants. These newcomers, along with their descendants, have continued to give special flavor to politics in Massachusetts. Problems of urbanization, ethnic integration, and industrialization were experienced early in Massachusetts' history. Some states further inland are only now, a century later, beginning to anticipate what seaboard states underwent in the late 1800s.

While these historical and geographic factors helped to condition economic and political structures and decisions, the socioeconomic composition have independent determinative effects upon which particular political issues are raised and how they are resolved. Of course, any political or social condition, depending upon perspective, can be thought of as "historical." But a distinction is made here of those which are of direct relevance to the policy in question. A large Black population's influence on policy making can certainly be referenced without direct consideration of slavery, the Civil War, and other such historical events. It is within

this context that the sectors of the model, their order and relationships are meant to apply.

Although review of the literature failed to identify other studies making direct use of this model, beyond those already cited, the model's general constructs are implicit in several additional works. For example, Tompkins (1975), through his use of path analysis testing the theoretical propositions of Key (1949) and Lockard (1959), specified a causal ordering of variables thought to influence the outcomes of the welfare policy process at the state level. This ordering is generally consistent with the Hofferbert model. Thus, the historical pattern of industrialization was seen as influencing the ethnicity of the populace (socioeconomic composition) with both influencing the degree of interparty competition (mass political behavior). This in turn partially determined voter turnout and thence welfare expenditures (policy outcomes).

Application of the larger model of the political process developed to this point can account for a number of the stages in this model. The final stage of Hofferbert's model, policy output has been operationalized as the amount of monies budgeted for the police at the municipal level of government. Levels 3, 4, and 5, directly preceding formal policy conversion have also been defined and a rational advanced for holding their effects on policy output constant. The next level, Level 2 consisting of socioeconomic composition, is the class of variables which has is now

formally being proposed for examination as to their effects on the level of funding provided for the police at the municipal level of government. Support for the use of this class of variables is found in the literature where it has been observed that one of the most profound shocks to political science in the past two decades is the finding that demographic composition is generally the best predictor of policy outputs (Mazmanian and Sabatier, 1980). And, more specifically of relevance here, "urban outputs (e.g. expenditures) are particularly responsive to cleavages generated by population diversity... (Morgan and Swanson, 1976: 490) ."

### Summary

This chapter opened by stating the importance of participation by the public in the governance process. It then pointed out the potential value of contributions from social science research in the development of theory contributing toward a better understanding of that process, particularly as it related to the area of public policy determination. Following from this, budgetary decisions were singled out as the particular type of public policy decisions to be examined by this inquiry as quantifiable expressions of public desires. Attention was then given over to the development of a general open systems model of the policy

determination process as might be applied within the context of municipal government budgeting.

This model suggested that budgetary policy outcomes were the result of interactions between the public and their elected officials in response to felt needs and demands arising from conditions in the external environment and operating in conjunction with certain characteristics of the individuals comprising the body politic. A paradigm was then presented which allowed us to identify and hold the influences of the public and elected officials on budgetary decision making constant while manipulating other selected variables. The specific class of variables which were selected to determine their effects on police budgetary outcomes were socioeconomic characteristics of the public. From this a general research question for the inquiry can now be specified as being: What portion of the differences in funding for the police between cities can be accounted for by identified socioeconomic variables?

The following sections of this work addresses this question and will be divided into four additional chapters. Chapter II will review the literature from a number of different disciplines concerning previous studies which have identified and tested socioeconomic factors believed to be determinants of budgetary outcomes in general. Chapter III will develop present the specific variables to be used in this inquiry as well as the methodology and research design for the study. Chapter IV presents the results of the study

and an analysis of those findings. Finally, the concern of Chapter V will be summary of the research, its present implications, and directions for possible future study in this area.



## CHAPTER II

### Introduction

An often told fable relates the story of the blind men who, when asked to describe an elephant, each felt different parts of its body and returned with widely differing but equally plausible descriptions. Like the blind men in that fable, many researchers have struggled to define the shape and form of public policy decision making, each arriving at somewhat different descriptions or conclusions. When assembled as a whole the results of these efforts suffer from much the same flaw as the blind men's, being incomplete, disjointed, or partially formed images of a larger body which may still be glimpsed only imperfectly. It is the purpose of this chapter to attempt to draw together these separate fragments, piecing them into a sort of order which, although being not complete in its detail, will at least accurately sketch the outlines of what is now known about the phenomenon and how to address it.

Even a cursory review of the literature reveals a wide variety of studies at least superficially related to the determination of public policy, with a somewhat lesser number specifically concerned with budgetary policy making. If consideration is further constrained to only that subset of studies pertaining to variations in and determinants of budgetary decision making there still exists a wide-ranging number of theoretical perspectives and empirical analyses

reflecting the unique and varied interests of researchers from a number of different disciplines. While on the one hand this richness of information provides valuable direction and insight, on the other it poses difficulties of classification and grouping, with a corresponding complexity in the comparison of results and conclusions.

Several correlary problems also follow from this diversity. First, even where operating under similar assumptions or employing the same variables, various researchers have examined different levels of government. This raises the distinct possibility of dissimilarities in the observed relationships of commonly held variables to policy outcomes, whether as a result of other intervening variables unique to that particular level of government or because of true direct differences between the specified variables and outcomes.

A second problem lies in the unit of analysis selected for the dependent variable. Here, the choices most commonly found are either the use of an aggregate measure such as the total level of spending by each unit within a class of governmental entities, or, comparisons between levels of funding for specific programs across common units of government. For the former a danger is present of assuming that correlational patterns found for the whole necessarily holds true for each of the individual activities comprising that whole. For the latter the danger operates in reverse when generalizing from the funding of a particular activity

to the entire budget. It would seem that perhaps one possible answer might be series of studies for each individual budgeting category, from which a total composite picture might be constructed.

A problem of a more fundamental nature is rooted in the use of systems theory as the conceptual paradigm most often employed by many of these studies. While systems theory appears to be a valuable framework for understanding the budgetary decision making process, its exercise has rarely been extended to guiding the research in the operationalization of key variables, or to defining how the linkages running through the input, throughput and output stages of the systems process are defined. In their critique of Dye's (1966) model of the budgetary process, Jacob and Lipsky (1968) emphasize several of these problems and it is worthwhile at this point to examine them in some detail.

Within his study Dye has elaborated on an extensive output analysis wherein budgetary outcomes are influenced by a variety of socioeconomic variables, the political system as operationalized by a measure of voter participation, the party system and legislative malapportionment. The outcomes themselves are specified as including individual program expenditure levels, as well as selected impact and quality measures. Linkages are then posited as running from both the socioeconomic variables, through the political variables, to outputs, and alternatively in some circumstances from inputs directly to outputs bypassing the political process.

The critique proceeds by pointing out that the major problem with this model is that the socioeconomic variables employed by Dye, urbanization, industrialization and education, are not of themselves inputs. More nearly they may be conceived as environmental factors leading to the articulation of demands and supports on the part of the public, but of a relationship type which is neither one to one nor constant. Evidence is then cited of instances wherein dissimilar environments have given rise to the same issue, indicating the presence of intervening variables not fully accounted for by this model.

This lack of a fully developed conceptual model has lead other researchers to commit the "partialling fallacy" where large numbers of variables are indiscriminately introduced and controlled for without adequate conceptual justification or sufficient development of the specific control variables (Thompkins, 1975:396). For example, Pidot's 1969 inquiry into the determinants of local fiscal patterns lists 26 variables with little or no discussion of how they are conceptually related to the policy outcomes of interest. Thompkins holds that as a result, except in the initial exploratory stages, the correlations so derived are often theoretically meaningless. However, it should also be noted that such studies do provide a valuable function in the selection of variables for later more in-depth studies.

A final problem, one arising only because of the peculiar interests and focus of this study, is that much of

the existing research is either not directly concerned with the decision making process nor the outcomes of that process as they relate to expenditures in support of the police function. Thus, while many findings may be suggestive, they cannot be said with any degree of empirical certainty to apply to the instant issue. Despite these seeming problems, when taken both as an aggregate and in some cases individually, analysis of the body of literature to be addressed in the following sections does provide a great deal of valuable direction and guidance to be derived from the concepts, methods, variables and findings of previous efforts.

Toward that end the remainder of this chapter shall be organized into sections dealing with comparisons and contrasts of the underlying conceptual bases, the range of variables employed, methodological or statistical techniques, and general and specific findings represented within the literature.

### Theoretical Bases

The intellectual antecedents of the theoretical bases underpinning most determinant research generally spring from either one of two disciplines; political science or economics. Although both bodies of research represent attempts to develop a positive theory of public expenditures explaining differences in the allocation of resources between

public and private sectors or among public functions, for the most part they exist side by side with little communication between the two. Thus, as might be expected, while exhibiting similarities in interest or focus, they also display identifiable differences.

Although acknowledging the risk of oversimplification, after reification the divergences in these models may be characterized as being ones of emphasis rather than of substance. Whereas the primary interest of economists is upon those outcomes resulting from the decision making process, the focus of many political scientists tends to favor the political decision making process leading to differences in outcomes. In their most specialized form political science models stress the importance of the internal bureaucratic decision making process, checked only in their total level of spending by the external environmental resources, as the determinants of changes in expenditure patterns. In contrast the economic models emphasize the importance of external environmental factors as they influence political decisions on the budget (Larkey, 1977:288).

Having said this, it should also be pointed out that in practice such exclusive separation of the two approaches is not always possible, with a number of studies blurring the lines of demarcation. Furthermore, no argument is made or intended as to the models being descriptive of actual behavior. Those presented here exist as true or pure types only insofar as they serve the purposes of conceptualization

and prediction. With this in mind the following discussion is intended to develop a fuller appreciation of the distinctions between the two models.

Economic based studies of public sector budgeting have logically tended to be concerned with the provision of public goods. Public goods being defined as "collective consumption goods" (Samuelson, 1954: 388), or those which if consumed by one member or individual in a community are also consumed by all remaining members of that community. Inherent in all public goods approaches to public finance is the assumption of rational choice by individuals confronted with the necessity for choice (Benjamin, 1977:399). Consequently economic based studies have been "largely preoccupied with the results of rational choice rather than the process of choice (Simon, 1978:2)." The peculiar type of rational choice posited as being made by individual citizens is that of maximization. The assumptions underlying maximization are most clearly set forth by Tiebout (1956:419) and include the belief that households are mobile, that citizens have perfect knowledge, and that there are many competing political jurisdictions. Citizens wishing to maximize the benefits received for their tax dollars will, by moving between jurisdictions, choose to locate in that political entity which offers a blend of public goods most nearly approximating their own "tastes". Efficiency is then brought about through the competition among jurisdictions to offer the most appealing blend of taxes and services.

An alternative model, also predicated on the rational choice of individuals, assumes that the supply curve measures the amount of the service desired at a given price while the short run supply curve is the same as the marginal cost curve. The actual level of service is then the point at which the two curves intersect. If individual preferences were fully known and actions were fully rational, as measured against the standard of maximization, the community demand would be the summation of individual demands. Since, as acknowledged by this model, preferences are not known, demand must be inferred through the voting process (Ohls and Wales, 1972: 424).

A cogent examination of the difficulties intrinsic to the public goods approach has been provided by Margolis (1968), which may be summarized as addressing two major issues. The first issue hinges on the capacity of demand analysis to discover and define individual preferences, the difficulties of which having been dealt with in the preceding chapter. Even if this were to be granted as being possible, it is at this point that the assumption of perfect knowledge breaks down because there exists no mechanism by which the decision maker is alerted that the benefits of an increment of output is greater than its cost. Furthermore, the strategic behavior of human beings is often such that their desire to pay for the provision of a public good is tempered by the expectation that another subgroup of the community is more desirous of that service and through their compliance



its benefits will become available to all. To the extent that a number of individuals engage in this behavior public goods will be undersupplied and the true demand for any good will not be revealed.

The second dilemma pointed out by Margolis (Ibid) is that the public goods approach also relies on judgements of individual preferences regarding the value of a particular service or good. Yet there appear to exist no plausible mechanisms for aggregating the preferences of groups of individuals, other than voting patterns with its attendant weaknesses. as they are directly related to consumption. An example relevant to public good theory is the desire by almost all citizens for their community to have an image as being safe from crime, even though the definitions of safety, an acceptable level thereof, and of what constitutes a crime do vary widely. But while citizens may value this image and political official's actions may be influenced by it, it is extremely difficult to empirically link particular behavior to that specific value. It is this desire for an observable measure linking attitudes to actions which underlies Tiebout's (1956) assumption of population mobility between jurisdictions, and in the alternative model to include the voting process.

Taken together these two criticisms raise the possibility of a weakness in public goods theory as it relates to the ability to make normative judgements concerning the determinants of policy outputs. Indeed, as

shall be addressed at a later point, one of the major flaws of many of the economics based studies is their failure to set forth the nature of the linkages binding variously selected socioeconomic variables to particular policy outcomes.

When considering determinant studies whose underlying theoretical paradigms are derived from theories generally associated with political science, review of the literature finds several identifiably distinct types which may be pulled together under several umbrella groupings. The first of these is much like the economic model in its focus upon external environmental factors and, having already been discussed in some detail in the preceding chapter, will consequently not be treated in any depth here. However, this model basically holds the influences of the political bureaucracy constant while examining the effects of variables from the external environment.

A second grouping of studies are those based on Simon's (1957) and Lindblom's (1959) development of decision theory applicable to situations where decision makers are so inundated by information and/or constrained by available resources that they must develop simplified means for choosing between competing alternatives. As best exemplified by the works of Wildavsky (1965) and Davis, Dempster and Wildavsky (1966), this body of thought finds its fullest expression in the budgeting theory of incrementalism.

Incrementalism has been used to designate a number of different budgetary concepts (Padgett, 1980: 355, LeLoup, 1978: 490). According to Skok (1980: 445) these include incrementalism as a microprocess whereby the analyst copes with the complexity of the budget by limiting consideration to a small range of changes in the base. As a macroprocess describing the partisan-mutual-adjustment process resulting in a minor series of changes to the existing base (Lindblom, 1968, Sharkansky, 1970). And, as an outcome describing the tendency of budget categories to steadily increase each year (Dye, 1975). Similarly, others have defined incrementalism as being used "(1) to characterize the decision making process of mutual adjustment and bargaining, and (2) to describe budgetary outcomes that result from that process (LeLoup, 1978: 491)."

Also associated with this grouping are what may be termed as process models emphasizing bureaucratic rules and organizational routines (Allison, 1971). The truest examples of these types of studies consist of conceptualizations of the stages in policy formulation in the organizational setting (Hall, 1984), and detail the flow of events making up the decision making process (Mohr, 1982). Examples of such studies would include Crecine's (1967, 1970) analysis of municipal budgeting and Gerwin's (1969) case study of budgeting within a particular school district.

There have been a number of criticisms of the incrementalist perspective of the budgeting process. Some of

these have been general and normative in nature, directed toward the view of the process as a seemingly deterministic or mechanistic in form. Others have faulted incrementalism for its failure to account for, or its masking of, important differences in the bases of budgeting; both in the role base of relevant actors and in the actual budget base (E.L.R. Smith, 1967).

A relatively complete critique which addresses these concerns is Etzioni's (1967), who first assessed incrementalism in terms of its normative implications. Etzioni argued that while incrementalism purports to be a political model implicitly intended to generate consensus among partisans of differing perspectives, it does not adequately take into account that the decisions so reached inevitably represent the actual distribution of power within society. Secondly, he examines the structure of the process and observes that incrementalism by definition excludes major types of decisions. While incremental choices may outnumber larger and more fundamental ones, it is the latter which set the context for the former and without which they would be meaningless. A relevant recent example of such a major shift in policy are those of the Reagan administration slowing the growth of domestic spending and increasing that of defense funding.

Additional criticisms, other than those focusing on normative aspects, are directed at the analytical choices and alternatives used in arriving at incrementalism theory. These

have been summarized by LeLoup (1978: 496) as including the level of aggregation used in analyzing budgetary information, the period of analysis, and the specific independent and dependent variables employed.

In terms of problems surrounding the level of aggregation, Wildavsky (1964), Fenno (1966) and Crecine (1966) and others have typically combined and analyzed data at the agency level. Intra-agency studies have suggested that this practice may lead to unwarranted conclusions by overlooking important changes in emphasis at the programmatic level. While appropriations for an agency as a whole often remain relatively stable from year to year, other research has found evidence of substantial shifts in resources among programs (Natchez and Bupp, 1973). As a result, LeLoup and Moreland (1978) have asserted that when viewing the appropriations process as a whole there is a tendency to come to conclusions supporting a higher level of stability than if the unit of analysis were each of the component stages.

It has also been noted that budgets may be divided into both mandatory and discretionary components. In the broadest sense mandatory functions include those performed both because of some legal requirement and those for which there is no direct legal requirement but for which tradition and public sentiment are so strong as to create the presumption that they are mandatory. To the extent that such mandatory functions exist the manipulation of expenditures as posited by incrementalism is precluded (Gist, 1977).

Similarly, Wanat (1974), who has argued that incrementalism as commonly employed tends to be more useful as a description rather than an explanation of budgetary behavior, has also differentiated between the base, mandatory needs, and programmatic desires within agency requests. As most commonly conceptualized in incrementalist theory, these refer respectively to the last year's appropriations, those monies needed to carry out services or programs required by law and/or held by a majority of the electorate to be a fundamental governmental function and responsibility, and new services which the agency and its constituents wish to add over and above current levels. It is his belief that this variance tends to cancel out at the agency level of analysis giving results biased toward incrementalism.

Within incrementalist studies the most common period of analysis is the yearly budget. As might be expected, where budgeting behavior is influenced by both expenditures and revenues, the amount of income anticipated is an important variable strongly influencing budgetary decisions (Crecine, 1967). For the historical period of time during which the theory of incrementalism was formulated, revenues tended to be relatively stable or slightly increasing over a long period of years. This stability on the revenue side acted to limit the amount of actual change in funding levels which had to be made in any one year. Although it did not preclude large scale reallocations such as those which occurred at the federal level during the early Reagan years, "a decision

process which centers on a single year alone cannot give adequate attention to long range expenditures which now make up most of the budget (Caiden, 1982: 516)."

A third criticism centers around the selection of variables usually considered by incrementalists, and argues that there exist alternative causal variables which have often been overlooked incrementalists. For example, LeLoup (1978) has found evidence supporting a correlation between the level of presidential support with the growth of appropriations at the federal level. Again, attention is directed to the defense buildup occurring with the strong support of President Reagan, or the growth of anti-poverty programs at the instigation of President Johnson. This finding of the importance of executive support is also consistent with the results of Crecine's (1970) which provides a great deal of detail as to why it might occur.

Perhaps in response to many of these criticisms, Wildavsky (1975) proposed an expanded framework of his original model. In this he suggested that budgets could be examined from a variety of perspectives including size, the political organizations or structures giving rise to them, the values and norms inherent in the process of political choice, or the dynamics of the financial environment surrounding the budgetary process. Of these, the latter two, as operationalized by wealth and the stability or predictability of the financial environment were felt to be predominant.

Within political science a third model of budgeting behavior which stands in opposition or contrast to incrementalism is based upon the construct of rationality. Rational-comprehensive budgeting theory has usually been exercised in reference to budgeting which emphasizes zero-based, data-influenced decisions between competing programs and categories. The ultimate extension of this process is one in which programmatic decision making forms the basis for the eventual implementation and evaluation of the programs. It is argued that as resources become more and more scarce this type of "rational" analysis must be implemented in a comprehensive fashion across the entire budget. However, relatively few empirical research studies have been conducted which specifically detail the process or results of a budgeting process based upon this type of model.

In summarizing the political science models it may be concluded that they are generally consistent with what have been called bargaining models which focus upon the decisions and the forces affecting them. These models are then appropriate for use if the interest is on gaining insight into the decision process itself, but if the focus is upon the ability to make estimates of demand their power is substantially less (Margolis, 1968: 557).

This then concludes the analysis of the basic theories which appear to underlie the majority of determinants studies. Building upon this, the following section will be concerned with a listing and examination of both the



variables which have variously been selected to operationalize these models and the linkages theorized as connecting them to the budgetary policy outcomes.

### Variables and Linkages

When considering the range of variables thought to influence the determination of public budgetary policy actual distinctions between the economic and political models often begin to blur, with a number of variables being common to both. However, within the political science literature dealing with the determinants of public expenditures, a central issue has been the debate concerning the relative importance of socioeconomic versus political variables (Lewis-Beck, 1977: 559).

Beginning with the works of Key (1949), Lockard (1959) and Dawson and Roberts (1966), a series of investigations were published which attempted to make comparisons between the relative impacts of socioeconomic and political variables. The results of this line of research have been mixed. Fry and Winters (1970) in their examination of the redistributive policies of states concluded that political variables (which included political participation, Democratic vote, interparty competition, and legislative inducements to participation) were more important than socioeconomic variables (which included median family income, industrialization, urbanization, education, the percentage of

families with less than a \$3,000 annual income, and the Gini index of income inequality). In their revision of Fry and Winter's work which used the identical variables, Booms and Halldorson (1973) concluded that their reformulation of benefit measures substantially increased the explanatory power of the socioeconomic variables. Others (Uslaner and Weber, 1975) have questioned the possibility of any real resolution of the primacy of one over the other, but have tended to favor political as contrasted to socioeconomic explanations. Still others (Dawson and Robinson, 1963; 1965) report that political variables (% of votes received by dominant part in governors race, and % of seats held in upper and lower state houses) have less effect upon policy outcomes than do the socioeconomic variables of per capita income, urbanization and industrialization. Finally, a third group of studies, as represented by those of Lineberry and Fowler (1967) have attempted to combine the two competing perspectives. The purpose of this section is not to argue for the supremacy of either perspective, but rather to attempt to present those variables which have been employed in the literature, and where possible, to develop the theoretical linkages between the variables and policy outcomes. Because of the particular focus of this effort, where possible, those studies which directly consider determinants of police services will be given more extended treatment in the analysis.

Beginning with Fabricant's (1952) examination of variations in state and local level expenditures a series of related articles appeared (Tiebout, 1956; Fisher, 1961; Kurnow, 1963; Fisher, 1964; Sacks and Harris, 1964; Bahl and Saunders; 1965), all of which included a number of what were to become standard variables. These variables were per capita income, population density and percent of the population living in urban places.

The first of these variables is interesting in that, depending upon how it is conceptualized, it may be employed as either an indicator for demand forces or as a surrogate measure of certain normative issues. Although the studies just mentioned do not make explicit the nature of the linkages between per capita income and variations in expenditures it appears as though it is being employed as a measure of the communities ability to pay for services. In this case the issue is rather clear cut with income representing the budget constraint upon which a communities demand curve is based.

However, when per capita income is used as an indicator of certain normative differences thought to exist within the population, the issue is not so clear cut. An example of this is Wilson and Banfield's (1964: 876) proposition that upper-middle class voters are more public minded, or as they put it "public-regarding," and therefore will often vote for public policies which are against their narrowly defined self-interests. Or that the civic focus of the middle class is on

"the community as a whole, rather than benefit of particularistic interests (877)." To test the supposition that the higher the income of a jurisdiction, the greater its taste for public expenditures, Lineberry and Fowler (1967: 711) hypothesized that the more middle class the city, as measured by income, education and occupation, the higher its municipal taxes and expenditures. Interestingly, economists have ignored this assumption as it relates to one of the problems inherent in the public goods approach. That problem being the difficulty in controlling for those individuals who, although desirous of a service, are willing to wait in the hope that others desiring it more may pay for it.

The remaining two commonly included variables of population density and urbanization are highly intercorrelated as is the variable of population size (Kurnow, 1963); making it likely that they are measuring similar dimensions, and will consequently be treated here as one. As with the preceding variable, there seems to be several alternative usages present within the literature, with at least three distinctively different possible linkages identified. The first linkage postulates that density will influence expenditures because of potential differences in economies of scale. The reasoning being that as the population increases, the needs increase and the size of the organizations intended to respond to those needs will also increase. As organizations grow bigger they are able to realize saving through more efficient usage of resources such

as administrative and specialized personnel and the ability to purchase supplies in bulk and at a reduced price. Similarly, Will (1965) approached this area of investigation by determining per capita cost of meeting technical standards for fire equipment and personnel provided by professional agencies.

A second means by which variables based upon population size might influence the level of expenditures is through the intervening demand variables. Again using the police as an example, the level of crime present in a community is an example of one such intervening demand variable. It is known that crime is an urban phenomenon, increasing in rate with population. Jurisdictions with high population densities tend to have correspondingly high crime rates. It may then be reasoned that the police costs associated with reducing that crime to any given level would be higher in a higher density jurisdiction than in a lower density one. Alternatively, there is some evidence to support the position communities' tolerance of crime varies by population.

The third possible linkage follows much the same type of logic. Wages in larger urban areas tend to be higher than those in more rural areas. Because most public services, including the police, are labor intensive with a high percentage of their expenditures going for personnel related expenses, the total costs of these functions should be sensitive to relative differences in the amount of monies which must be expended for labor. At least one author

(Walzer, 1970) has addressed the issue of wages directly by inclusion of a variable measuring the average wage of police officers in his study of police economies of scale. It should be pointed out that depending upon how it is conceptualized variables associated with population may be either demand or supply side influences on expenditures.

Sacks and Harris (1964) who examined variations in expenditures between state and local government and Bahl and Saunders (1965) who were concerned with *changes* in state and local expenditures were among the first to expand on Fabricant's original concepts by including a measure for per capita federal grants. The obvious assumption being that the ability of a jurisdiction to compete for and successfully obtain grant monies increases the communities ability to pay for services and will then directly effect expenditures. As it regards the policing function this would not seem to be a significant factor because of the extremely limited grant monies available for law enforcement functions.

Building upon his 1961 work, Fisher (1964) later set out to expand the number of variables included in an attempt to increase the percentage of variance in expenditures accounted for among state and local governments. Those variables selected were grouped into three divisions designated as economic, demographic and sociopolitical, indicating not only the nature of the variables but their presumed effects. The variables, drawn from 1959 data, included in the economic grouping were per capita personal income, percent of families

with less than \$2,000 income, median family income, per capita yield of representative property tax as a percent of the U.S. average and per capita yield of representative tax as a percent of the U.S. average. Those variables believed to be demographic determinants were population per square mile, percent of population living in urban places outside of a Standard metropolitan Statistical Area (SMSA), percent of population within SMSAs, percent of population in urban areas, and the percent of increase in population between 1950 and 1960. The final grouping of sociopolitical variables was composed of an unspecified index of two-party competition (consequently being impossible to differentiate from similar political variables) and the percent of the population with less than five years of schooling.

Although the per capita income variable was included to measure the standard ability to pay concept, so too was it viewed as tapping into an alternative dimension of cleavages within the population believed to influence governmental expenditures. That logic being that a high level of income may be associated with a lesser need for some types of services, such as welfare payments, and therefore acts to decrease the level of expenditures in that area. To further develop this idea another variable, the percent of families with incomes of less than \$2,000, was selected. Fisher also briefly alluded to the idea that the level and distribution of income might influence attitude towards governmental outcomes, but did nothing to further develop the concept. The

median level of family income variable was chosen primarily as an alternative measure of capacity to pay, and was felt to be a more accurate reflection of the typical families' economic well being because it was not as susceptible to the influence of a few high income families as is the per capita income variable.

The variables of per capita yield of a representative property tax and the per capita yield of a representative tax system are, insofar as was able to be determined, unique to this study. The first of these variables is defined as "an estimate of the amount of the amount of revenue which would be produced if each state levied a 'representative' tax upon property assessed at a uniform percentage of true value (Fisher, 1965: 62). The latter variable was an index developed by the Advisory Commission on Intergovernmental Relations (1962), based on a hypothetical tax system intended to be representative of tax practices in the majority of states. Although the authors do not provide any detail as to why these variables were included nor the supposed linkages between the variables and budgetary outcomes, it it would appear that, at least for the former, they are intended to serve as alternative measures of the communities tax capacity.

For the variables included under the general grouping of demographic indicators it was stated that no single variable could adequately describe the spatial distribution of the population. Thus, the five indicators already enumerated were



selected. Justification for their inclusion was based on the assumption that population and changes in the population influence the level and type of governmental expenditures. More precisely, it was believed that increased concentration of population increases certain categories of expenditures while a scarcity of population increases other services. Pidot (1969) also included a specific variable measuring the rate of population change. It was hypothesized that changes in population were likely to have a positive relationship with capital expenditures as the increased number of citizens required the construction of new buildings to serve them.

The two variables making up the socio-political grouping were an index of two party competition and the percent of the population over twenty-five with less than five years of schooling. The two party index, the particulars of which were not provided, was an attempt to test the hypothesis that competition between parties leads to governmental actions intended to address the needs of the economically poorer segments of society. The schooling variable had been used in an earlier study by the author (Fisher, 1963) examining the relationship between high levels of illiteracy and welfare expenditures. Its inclusion here was for the purpose of determining the relationships that might exist between this and other classes of expenditures.

A study which built upon previous works, but reflecting a different methodological approach was undertaken by Bahl and Saunders (1965). While the early studies by Fabricant

(1942), Fisher (1964), Sacks and Harris (1964) and others, were concerned cross-sectional and concerned with absolute differences in expenditures, this study examined how changes in the independent variables influenced changes in dependent variables for the years 1957-1960. The selected five variables were expressed in terms of their percentage change for the years examined, with the first three selected being identical to those employed in previous studies; per capita personal income, population density and urban population. The fourth variable of changes in per capita federal grants to states was included based on the work of Sacks and Harris (1964) who had found it to be highly significant. The final variable of changes in public school enrollment was selected because of the relative importance of school funding in state and local spending.

The use of this particular variable is questionable not only because it is also a component of the dependent variable, but because of the limited role city government plays in the determination of school expenditure policies. In data taken from the 1960 census it was found that in 76 percent of the cities with populations of 25,000 or greater, the city government had virtually no responsibility in the raising of revenues, budget determination or the provision of administration or staff for schools (Liebert, 1974). While education was the single largest category of expenditures in 1962, it is apparent that city government actually played little role in its operations. The same types of difficulties

also arise, particularly on a regional basis, for some other functions such as welfare.

Pidot (1969) in his study local government spending patterns proposed twenty six independent variables thought to be potentially significant. While many of these have already been addressed, several were new and will be dealt with here. One category of such variables are those describing the conditions of the existing housing stock. Characteristics such as their condition, age, etc. were hypothesized as being indicative of living conditions and therefore generating demands of the public sector for particular services.

A more important interpretation of the linkages between housing and expenditures was hypothesized between the percentage of housing resided in by its owners and expenditures. In most communities a primary source of governmental funds is the property tax. A community with a relatively high proportion of nonresidential or nonowner-occupied in housing (rental units) was thought to be more likely to raise property taxes in support of services than one in which the converse was true.

Pidot (1969: 178) also noted the possibility of an interactive effect between level of income and owner-occupied housing which would possibly influence both the level and types of expenditures. Communities with approximately the same level of property base, but with higher levels of personal income, would be likely to raise property levies more readily than those with lower levels of personal income.

Similarly, the level of personal income was seen as having an effect on the types of services demanded as was alluded to by Fisher (1964). An example of this phenomenon would be decreases in welfare and public housing spending with increases in personal income with possible increases for education and parks and recreation.

This then concludes the presentation of those socioeconomic variables and their linkages which have been employed by various researchers in the belief that they were determinants of total levels and/or classes of public expenditures. Although not exhaustive of all variables identified in the literature, the discussion does address each of the major areas of speculation and those variables which were not directly specified are seen as being merely variations measuring the same underlying concepts. The two fundamental themes which seem to emerge are that socioeconomic variables generally reflect the capacity of the community to pay for a given level of services, or that they are visible manifestations of cleavages within the population which translates to differences in the demand for public services. Such variations in demand can be further partitioned into those differences arising from the real and perceived needs of the populace and those which occur as a result of divergences in beliefs concerning the role of government. Having dealt with socioeconomic determinants some attention must now be devoted to those variables believed to influence budgetary policy through the political system or other means.

A number of political scientists (e.g. Banfield and Wilson, 1963; Wilson and Banfield, 1964; Sherbenou, 1961; Schnore and Alford, 1963) have speculated on the existence of what Banfield and Wilson (1963: 10) have termed as the "middle-class ethos." This set of beliefs or ideology is most purely exemplified, as it relates to politics, by the participants in the Progressive movement of the early nineteen hundreds. Primarily White Anglo-Saxon Protestants, these reformers reacted to the abuses of party and machine politics prevalent in that era. In particular they were concerned with the manner in which politicians seemed to play on class, racial and religious differences. In reaction the reformers goals were to remove these influences from the political process and rationalize it through the election of leaders more concerned with the overall good of the community than with the narrowly defined interests of particular groups. Among those institutional arrangements advanced by the Progressives to accomplish this goal by breaking the power of the existing political machines, and which are still in place today, were the implementation of the commission or council-manger forms of city government, nonpartisan elections and at-large constituencies. Lineberry and Fowler (1967) and Dye and Garcia (1978), building upon a line of research indicating variations in political outcomes resulting from differences in the partisanship or reformed models of government used these four variables in conjunction

with a number of other socioeconomic variables to test the consequences of municipal reform for budgetary outcomes.

Noting the ongoing debate as to the relative importance of political and socioeconomic variables as determinants of budgetary policy, Tompkins (1975) tested the assumptions advanced by Key (1949) and Lockard (1959) concerning the effects of political variables on redistributive policies. Key had hypothesized that interparty competition determines the extent to which governmental policies are responsive to the needs and demands of the poorer segments of our society. Lockard then further developed this hypothesis in noting that the degree to which government can respond to those in need was dependent upon the wealth available to it regardless of the degree or legitimacy of those claims. Secondly, Lockard suggested that the level of diversity of economic interests within the state influences the party system and its operation, with greater diversity leading to more competition and a lesser degree of diversity contributing to one-party power.

This later hypothesis was extended by the identification of several antecedent variables which were believed to contribute to the level of inter-party competition.

"Industrialization, and the variety of skills it demands, promotes the development of countervailing sources of power, making a predominant one-party faction less likely. Ethnic composition is a major element of the diversity - or lack of it - in New England politics." (Tompkins, 1975: 393) Tompkins

then employed path analysis to test various arrangements of the five variables of industrialization (defined as the percentage of the labor force not employed in agriculture, fishing or forestry), per capita income, ethnicity (percentage of native born of foreign or mixed parentage), interparty competition (based upon a composite percentage of popular support for governor, House and Senate over a period of years), and voter turnout (as measured by percentage of voting age population in the state who voted in the 1960 presidential election). From this, Thomkins reported an  $R^2$  of .700 for the dependent variable of per recipient aid to dependent children. Perhaps the most important finding was the strong influence of the socioeconomic variable ethnicity upon the dependent variable (the path coefficient = .499).

One factor which would appear to be logically related to differences among cities in their absolute level of expenditures and for variations between functions among cities is the number of services they undertake to perform. Dye and Garcia (1978) examined the influences of a number of political and socioeconomic variables on the degree to which cities were functionally comprehensive and the relationship of that comprehensiveness to variations in per capita funding for both total expenditures and individual program expenditures. Three variables used which have not previously been examined are the distinction between core and suburban cities, the geographic region in which the city was located

and the age of the city as measured by the number of years since it attained a population of 50,000.

Although the theory specifying the interactions between these variables and the budget outcomes were not made clear, review of the literature does find some support for their use and provides grounds for speculation. As regards distinctions in spending between suburban and urban municipalities Hawley (1951) found an inverse relationship between between per capita expenditures by the central city and the proportion of SMSA residents living outside the central city. These findings were later supported by those of Brazer (1959) and Kee (1965). Dye (1965) found that metropolitan areas in Wisconsin had substantially higher per capita operating cost than did their suburbs, leading him to conclude that the central city was providing the essential physical plant facilities for the entire area. Such findings have led to the advancement of what may be called the "urban-suburban exploitation hypothesis," which holds that residents of the suburbs in essence exploit the public services of the central city by drawing heavily on them while at the same time contributing to the urban problems of pollution, traffic congestion, crime, etc. As a result the core cities must spend more to address these problems.

Following from the Tiebout hypothesis, as the central cities raise their tax rates in order to meet the increasing demands, citizens would then begin to migrate out to other jurisdictions which provide a more appealing mixture of taxes



and services. Residents most likely to follow this pattern would be the more affluent leaving in possession of the central cities those least able to pay and with the highest needs.

Variations of city expenditures by regions is a more complex phenomenon, a full treatment of which is beyond the scope of this effort. However, it would appear that such differences may be the result of differences in the historical development of cities (Glaab and Brown, 1967) and differences in political philosophy of their residents. For example as a whole, the west and southwest tends to be more conservative politically than does the northeast. One way in which these differences are manifested is through beliefs about the appropriate role of scope of government. Thus cities in a region with a more conservative political may tend to spend less on municipal functions than those in a more liberal region.

While there are a number of studies examining factors in the external environment believed to drive those governmental budgetary decisions, few specify how external pressures are actually translated into the decisions. Crecine (1970), based on his observation of the budgetary process in Cleveland, Detroit, and Pittsburgh, developed a model purporting to identify the nature of such a conversion mechanism, and, when regressing observed budgetary decisions on the model's predictions reported  $R^2$ s of .9980, .9772, and .9975 respectively for the three cities. In this normative model

the influence of the external environment was found to be limited to acting as a revenue constraint upon the actions of the political or internal environment. Decision makers defined the budget problem not in terms of optimally balancing community resources to best achieve community goals, but rather reduce it to one of balancing the budget. Thus, with the exception of revenue, the independent variables acting as budget determinants are those which make up the behaviors of the decision makers.

Crecine argues that the problem of the budget is potentially so complex that there exist only a limited range of behaviors which are appropriate to its resolution. These behaviors and the way in which they influence the structure of the decision making process therefore constitute the variables which act as determinants of outcomes. These include the use of a standard reference of dollar values, as contrasted to units such as men or number of street lights, for the allocation process. Separate determinations are then made for each expenditure item with the changes being geared to anticipated revenues. Department heads then focus on submitting a budget request which maintains existing levels of service, stands a high probability of being accepted by the mayor's office and provide for an increase if revenues allow. The mayor sees the problem in terms of balancing the budget, maintaining existing service levels, providing for wage increases if possible and avoiding a tax increase.

Finally, the city council's role is largely limited to minor changes in the mayor's recommendations.

A study unique in that it combines elements of the socioeconomic, political and rational models of the budgetary process, and which takes a differing perspective of the actions of the political subunits than does Crecine, was conducted by Greenwood, Hining and Ranson (1976). The authors begin by noting the various criticisms of the incremental theory of budgeting. Distinguishing between those criticisms that the particular charge which they wish to address is that of conceptual imprecision. In particular it is pointed out that while incrementalism has considerable predictive force it is much weaker as an explanatory theory, failing to account for why it occurs and why it is present in some systems in a greater degree than others. While most explanations of incrementalism are grounded in Simon's (1945) limited rationality thesis, there is ample evidence indicating the budget is the outcome of clashes between political interests. Greenwood et al believe that as a consequence any explanatory theory must be based on political features of organizational conflict rather than cognitive deficiencies.

Using organizational politics as their starting point, the author's stated purpose is "...to present a set of concepts which capture the necessary phenomena, and to illustrate the nature of their possible interaction. The intention is not present an empirical test of a definite

theory: but to present the broad shape and style of the kind of theory that we believe should be developed (op cit: 28)."

In further expanding their outlines of the theory the authors acknowledge that an organization functions within the wider environment, the context of which influences the budgetary process. Therefore they also attempt to fix the organizations of interest within their peculiar environments and to demonstrate how the former is influenced by the latter.

The explanatory framework of the model is based upon four phenomena; interests, values, interactions and power. Organizational sub-units such as departments are postulated as having identifiable sets of values and interests often at odds with other sub-units. These differences result in competitive or conflictual interactions between the groups, with each competing to have its own unique interests and values translated into favorable budgetary outcomes. The extent to which this is possible is dependent upon the power of the particular sub-unit. Interests are further defined as being a motivation to defend or enhance organizational resources, with the prime dimension of this concept being the degree of dissatisfaction with existing allocational patterns. The degree of dissatisfaction then is believed to have direct consequences for the way in which the budgeting authority draws up the budget.

Values are explained as the commitments of a group or sub-unit to a set of ideas in comparison to which the organization's operations are evaluated. Representative of

these ideas sets currently having currency in local government are corporate planning, efficiency and economic restraint, participation and professionalism. Each of these idea sets then have implications for the role of the local authority, and for the various actors within the authority, which may or may not be in conflict with other idea sets. For example, the greater the degree of centralized control implied by the value set of corporate planning the lesser the degree of decentralization as implied by the values surrounding professionalism. Consequently groups will differentially value sets of ideas depending upon their interpretation of the consequences of those ideas in regards to favorable budget outcomes. As is apparent, these values are not directly linked to budget outcomes but are mediated by by the distribution of power and authority within the organization. Greenwood et al provide the example of a situation wherein all organizational departments are in agreement except one. The resulting budgetary process would then vary depending upon the amount of power held by that department. Specifically it was hypothesized that the use of a non-incremental, rational procedure would be dependent on a consensus of values among departments holding a substantial amount of power. In the converse situation where there exists no value consensus or where there is no balance of power, incrementalism would be more likely to come into play.

An organization can therefore be classified in terms of the interests, values and power held by its constituent

groups, with both budget process and outcomes influenced by those variables. In turn, the variables do not exist apart from other factors but are embedded within and influenced by the organizational context. Key to the organizational context are the structures and procedures which leading to organizational differentiation or integration. A primary dimension of differentiation and integration is the position where an organization falls on the continuum formed by these two variables. The greater the differentiation the greater the number of departments competing for resources, in turn increasing probability of competing values and the potential level of dissatisfaction with allocations.

A second dimension is the criteria for differentiation. The authors state that the trend in England, where this study was conducted, is similar to that in the United States with the clustering of programs with similar goals into single departments. This arrangement is believed to more sharply focus attention upon the purposes of expenditures, client groups and related social problems. Consequently the explicit consideration of concerns common across these is thought to foster a more rational style of decision making as well as those sets of values associated with a rational management style.

The second feature underlying organizational arrangements is integration, whose dimensions are specified as being its extent and criteria. The extent of integration refers to the number of central committees, inter-

departmental arrangements, etc., while criteria addresses the degree to which coordination of policies is either centralized or dispersed throughout the organization. A trend in English government is toward the separation of the chief executive officer from the clerk's department and giving that person the responsibility for the planning function, analogous to the trend toward city managers in the United States. This emphasizes the corporate approach of specialized teams, rationality, the integration of planning and budgeting, and concentration of responsibility at the center of the organization. The authors believe that the more this occurs, the greater the probability of conflict and the higher the disagreement surrounding allocational patterns.

Another important organizational characteristic is that of political organization as influenced by the external environment and the organizational set. In this sense political organization refers to the extent to which political parties are organized to control decision outcomes. A condition of high political organization is characterized by the presence of officials who hold regular party meetings, the existence of patronage controlled by the party resulting in increased party membership, attempts to control administrative committees and organized party voting on key issues. The level of political organization will in turn influence particular organizational arrangements as well as its values, interests and power.

Three separate aspects are then examined which link the organization and its budgetary process to the external environment. These include ideas, which are one of the contingencies of the external environment. The extent to which political authorities respond to these ideas is in part determined by the predisposition of the organization's groups, and in part by the visibility and salience of the ideas themselves which make it more or less difficult for the organization to identify and/or ignore them.

The second set of contingencies concern the nature and are of the population served. On the one hand the presence of different social groups, social problems, physical infrastructure, etc., produces differential pressures in the form of demands for service provision. On the other hand, these pressures also influence the political organization itself in such ways as number of employees, increasing the power of some departments, and the budget process itself.

The third and final contingency concerns the relationship between the organization and its interorganizational set. For governmental entities this set is primarily composed of other governmental organizations and their influence upon the organization of interest.

Departing from the standard practice of other studies, distinctions are made between budgetary outcomes operationalized as changes in outcomes between years, and the budgetary process. The process was further broken down into a number of dimensions. The first of these was the "parameters



of review," defined as that portion of the budget which is actually reviewed in a given year. A second dimension was how the budget is reviewed. This variable was concerned with the level of rationality entailed in the process and varies from what is stated as being labeled as a highly rational process, program, planning, budgeting to the nonrational political negotiating.

### Statistical Techniques

Beginning with Fabricant (1942) the most commonly employed statistical technique use in determinant studies has been that of cross-sectional single or multivariate regression analysis. In reexamining the works of Fabricant (Ibid) and Fisher (1961), Kurnow (1963: 252) noted that the regression model applied by those authors assumed that the relationship among the selected variables was additive in nature. This implies that changes in per capita expenditures as a result of a unit change in one of the predictor variables is the same regardless of the level of the other predictors in the equation. To address this issue Kurnow (Ibid) reanalyzed their data using a joint regression model which determines the change in per capita expenditures based upon the combination of independent variables rather than on the separate effects of each. It was claimed that this technique accounted for the explanation of a significantly higher percentage of the variance than did the original

additive model. This is borne out by a comparison of the  $R^2$ s obtained from the Fabricant, Fisher, and Kurnow studies which were .72, .53, and .88 respectively.

One difficulty with cross-sectional analysis is that it enables only a static interpretation of the data. That is, the differences in the dependent variables are associated with the differences in the independent variables at a single point in time. To address this issue and to focus upon changes in expenditures, Sacks and Harris (1964) and Bahl and Saunders (1965) both examined the size and the changes in cross-sectional data in order to relate changes in the dependent variable over time to changes in the independent variables.

The practice of regressing per capita expenditures on a number of independent variables has been criticized because of the presence of intercorrelations between the independent variables (Morss, 1966). It has been found that where substantial multicollinearity is present there exists a tendency for the standard errors of the estimated parameters to become inflated (Frisch and Budgett, 1931: 275). The fact that confluence is manifested by large standard errors of the parameters indicates the dangers in inferring that only variables with significant regression coefficients are important. A regression coefficient may well be nonsignificant because it contributes little to explained variation, i.e., because the explanatory factor is unrelated to the dependent variable. However, a regression coefficient

may also be statistically nonsignificant if it is closely related to another of the explanatory variables, even if it is an important 'explainer' of variation in the dependent variable (Bahl, 1969: 76). To address this problem, Pidot (1969) utilized principal components analysis to create a number of uncorrelated measures thought to influence local expenditures. The indices so formed were then used in a standard least-squares regression analysis.

Another limitation of the standard regression approach to determinants research is that it, and often the underlying theory upon which the selection of variables to be included is based, fails to specify the causal sequence of the dependent variables and their direct and indirect relationships. In part this failure to specify a causal sequence appears to have contributed to the debate within the literature concerning the relative importance of political and socioeconomic variables. One statistical method for addressing these shortcomings is through the use of path analysis. The theoretical assumptions necessary to satisfy the requirements of path analysis are that there is a specified temporal sequence among the independent variables, and that the causal linkages among the variables are unidirectional. As originally stated the Key-Lockard propositions concerning the determinants of state welfare expenditures satisfy these requirements. Tompkins (1975), in the only study of its type discovered, presents and tests a path analysis model accurately reflecting those propositions.

## Findings

Using cross sectional data from 1942 Fabricant (1952) found that the three variables of population density, urbanization and income were all strongly related to the total level of governmental expenditures, accounting for 72 percent of the variance among state and local governments. The variables were also found to be significantly related to variations within the functions of schools, highways, public welfare, health and hospitals, police, fire, and general control with the variance explained ranging between 29 and 85 percent. The three measures employed by Fabricant have since become standard in the literature and, in one form or another, been included by most researchers in the area.

Fisher (1961) later replicated Fabricant's study, using data from 1957, and obtained similar result with one important difference. The percentage of variation in total expenditures accounted for by the three variables decreased substantially. Sacks and Harris (1964) also replicated these studies using data from 1942, 1957 and also from 1960. Their findings confirmed those of both Fabricant and Fisher as well confirming that the decrease in explanatory power extend to the 1960 data. Hypothesizing that the differences might lay in the increasing importance of federal and state aid for the funding of state and local governmental activities, the most recent data was reanalyzed with the addition of two independent variables: state and federal aid. The results

indicated that these two variables explained a significant percentage of the variance and that the contributions of the other variables became negligible.

However, the authors did not apply the revenue transfer variables to the functional category of police expenditures. Although it was not specifically stated why this was not done, it may be speculated that it reflects their understanding of the limited or nonexistent role of the state and federal government in the funding of local police activities. For the original three variable, Sacks and Harris found that while population density was not significantly related to police expenditures, both the percent urban and per capita income were significant at the .05 level and jointly accounted for 85 percent of the variance. ✓1

Shortly following this study Fisher (1964) attempted to increase the amount of variance accounted for by including a number of new variables into his analysis. Numbering a total of fourteen variables, each could be included within one of the three groupings of economic (per capita income, median family income, % of families with income under \$2,000, per capita yield of representative property tax, and per capita yield of representative tax system), demographic (population per square mile, percent of population living in urban places outside SMSA, percent of population in SMSA, percent of population in urban places, and percent increase in population), and sociopolitical variables (per capita welfare expenditures less federal grants, per recipient aid to

dependent children payments, per capita expenditure for education, and per capita general expenditure less federal grants.. On the basis of a preliminary examination, the number was reduced to the seven of percent of families with less than \$2,000 income, yield of representative tax system as a percent of U.S. average, population per square mile, percent urban population, an index of two-party competition and the percent of the population over 25 with less than five years schooling. Testing with both the seven variable equation and Fabricant's original three variable equation provided an  $R^2$  of .654 and .497 respectively for over all expenditures.

For the police expenditures alone the results were .436 and .303 for each of the equations. The overall results were then broken down to show the contribution for each of the groups of variables. The results indicated that the demographic variables of population per square mile, percent of population in urban places, and percent increase in population were by far the most important in accounting in differences in education, public welfare, police, fire and general control. Using the same data Kurnow (1963) obtained somewhat better results by using a joint rather than an additive regression model.

Bahl and Saunders (1965), rather than examining cross-sectional data, employed longitudinal measures for the years 1957 through 1960. The focus of this effort being differences in changes in expenditures between state and local

governments rather than the absolute differences between expenditures themselves. The independent variables employed were therefore changes in per capita income, population density, urban population, per capita federal grants to states and public school enrollment. Analysis of the results revealed that all model containing all five variables explained approximately 46 percent of the variation among the states, but that a model containing only the income and federal aid variables accounted for 39 percent. In the five variable model federal aid was by far the most important determinant with a coefficient of partial determination of .3442. However, for the police alone the model was capable of accounting for only 28 percent of the variance in changes. When overall results are compared with the Sacks and Harris (1964) findings, which concluded that the three basic variables accounted for 52 percent of the variation, it is found that the same variables only account for 18 percent of the changes. The authors concluded that, "This result suggests that the future importance of the basic variables relative to explaining variations in the levels of state and local expenditures may be considerably lessened (Bahl and Saunders, 1965: 56)."

From a nonexhaustive list of potential variables totaling over sixty, Pidot (1969) selected thirty for testing their effects upon a sample of eighty-one of the countries largest metropolitan core areas. However, this number of variables raised the issue of multicollinearity with a

preliminary analysis indicating that the level of intercorrelations for some variables approached coefficients of .9. Given the problems that would be inherent in the interpretation of results using standard multiple regression, principle components analysis was selected instead. In all a total of six components were created. In addition to the six components several individual variables were also inserted directly into the equation. This was done for those whose effects the researcher wished to observe directly, being primarily the effects of state and federal aid.

The first of the components was labeled metropolitanism and yielded index weights indicating high population density and slow or negative growth rates, and the presence of large suburban areas with a commuting labor force using public transportation. The housing stock tended to be older and renter-occupied and there was a concentration of wholesaling and service industries.

The second component was inversely related to wealth and had high negative correlations with income measures and indices of high housing quality. The value added through manufacturing was low and property values were reduced.

The third component proved to be an inverse measure of size, thought to reflect characteristics associated with large metropolitan areas which had not yet matured. Indications were that these areas had a tendency toward high proportions of service industries, with greater levels of personal income and higher property values.



The remaining three components are not so easily characterized. Small number of elderly and low income people, and a manufacturing as contrasted to a retailing base, were associated with the fourth, while the fifth component was representative of heavy residential development rather than manufacturing with relatively lower property values. This latter component also had a strong negative correlation with the proportion of students in public schools. The sixth and final component appeared to be a measure of stagnation with high scoring areas being larger and exhibiting substantial levels of outmigration, more poverty, poorer housing and lower retail sales.

For most of the functions examined the model was able to account for between fifty to seventy-five percent of the variance in expenditures. It was least successful in accounting for the variation in several minor functions and for capital expenditures. The  $R^2$  for the police was an extremely high .758 with the metropolitan component being the most important explanatory factor. This component was also the most important for social welfare programs, fire protection, sewage and sanitation and some general specialized governmental functions.

The general size measure also had a strong positive effect on expenditures for the police, health and hospitals, sanitation and parks. As a general observation it may be suggested that the relationship between size and expenditures was due to a greater range of services being offered in

larger metropolitan areas rather than because of higher costs or diseconomies of scale.

The issue of the range of services provided influencing the level of expenditures was directly addressed by Dye and Garcia (1978). Their data was derived from a sample of 243 core cities within Standard Metropolitan Statistical Areas (SMSAs) and 340 suburban municipalities also within the SMSAs but outside the central cities. Initial analysis found a definite difference between the two subsamples with central cities generally being more comprehensive in services offered, while the suburban municipalities tended to be more specialized. For the twelve functional areas central cities performed an average of 9.77 as contrasted to an average of 7.89 for the suburbs (unfortunately the standard deviation was not reported). Differences in responsibility were clustered in the education, welfare, health services, library and housing functions. Increased functionalism was also found to be associated with region; cities in the northeast offering a more comprehensive array than those in the west and southwest, and with the age of the city as measured by the date since a population of 50,000 was attained.

Further analysis was conducted using three dependent variables of tax revenues, total expenditures and expenditures for the police. When testing using the equation including twelve socioeconomic variables and a single variable measuring functional responsibility and defined as the number of functions provided by the city in question, the

percentage of the variance accounted for was 73 percent, 65 percent, and 76 percent respectively. When considering the socioeconomic variables alone the results were 68 percent, 57 percent and 76 percent indicating that the degree of functional responsibility is not an important determinant of police expenditures.

A somewhat different approach was taken by Boyle and Jacobs (1982) in examining the distribution of governmental services within, rather than among, municipalities. The independent variables used were the tax contribution per resident, number of residents younger than seventeen and older than sixty-five, number of residents below the poverty line, the percentage of those in managerial, technical and professional occupations, and the percentage of nonwhite residents. The analysis found two distinct patterns appearing to influence the provision of services.

Expenditures for social services (health, education and welfare) were found to increase with the dependency of the neighborhood population. The authors suggest that for these services a compensatory model of distribution explained the observed variance. But for service classified as property related (fire and sanitation), the level of services provided increased with the level of property taxes paid by the neighborhood. This was defined as a contributory model of service distribution. Of interest to this study was the finding that for the police both tax contributions and level of dependency appeared to determine service levels, which was

interpreted as indicating the presence of conflicting or different set of decision rules.

One study largely concerned with the process and decision rules operant within the political subcomponent of the budget determination system was that of Crecine (1970). Crecine's work is predicated upon the two assumptions that the municipal allocation process is a nearly decomposable system, that is that the entire system can be broken down into the separate subsystems of department, city council, mayor and external environment whose decisions may be examined independently, and that it is a linear process. Acceptance of these propositions allows Crecine to structure the decision making as one within which decisions are formulated within a series of administrative units with the output of one (decisions) forming the input of the next. Thus, decision making becomes a bureaucratic operation representing a division of labor between department heads, mayor's office and city council. Analysis was then directed toward identifying and determining the contributions of factors subsumed within the decomposable subsystem (internal), and the those influences of the larger system (external) on the decision making process for the three municipalities examined.

For dependent variable Crecine selected the standard variable of per capita expenditures, postulating that observed differences would occur as the result of interactions between:

...differences in taste (white collar-blue collar employment distribution, median per capita income, population age distribution, value of housing), need (population density), ability to pay (industrial assessments, median income, assessed valuation, wealth, federal and state revenue), costs (e.g. economies of scale, size of suburbs), political factors (party competition, owner-renter ratio, "power" structure), service standards (national or regional norms) and precedent (Crecine, 1970: 271).

It is argued that the primary feature in terms of the manner in which the budget problem effects the internal environment is its complexity. This complexity is limited by one overriding political and legal constraint, the requirement that the budget be balanced. Others (Lindblom, 1959), have pointed out that the complexity of the process is such that man is not capable of dealing with all of its possible alternative or ramifications and must therefore develop decision aids to simplify the required calculations. Crecine expands upon these decision aids in the form of a number of heuristics which his observations led him to believe that officials use to reduce interrelated decisions into more self-contained serial ones.

The first, and most important, is a finding consistent with Wildavsky's (1964) work that the process is geared year to year adjustments in individual expenditure accounts which are based upon changes in anticipated revenues. Following from this, interviews indicated that officials did not perceive the "problem" of the budget as being the optimal balancing of community resources (maximization) or the allocation of funds to achieve explicit community goals. It

was indicated that the primary driving force behind budget decisions was the level of available or anticipated available revenues rather than external environmental influences such as community desires expressed through the political process. Acceptance of this would then lead one to conclude that in many instances the driving force behind budgetary decisions are the result of power centers within the bureaucracy. Since this is an important point having implications for this research it will be returned to shortly.

A second heuristic assumes the assumption of self-limiting roles by actors in each of the subsystems. By constraining the scope of their activities the actors also limit the number of variables which must be considered. Departments define and circumscribe the budget determination problem as one of maintenance of existing effort, acceptability of outputs by the mayor's office, and a provision for an increase in funding if so indicated by revenue projections. In turn the mayor defines the problem as one of balancing the overall budget, providing for wage increase and avoiding tax increases. The city council, because of limitations in staff and time, is largely reduced to approval or disapproval of the mayor's recommendations. k

The third heuristic, closely related to the second, includes the separate treatment of capital and operating budgets, and consideration of account categories within departments on an individual basis. The procedure allows the budget to be broken down into manageable components which can

then be considered on an account by account basis, reducing the need to deal with the overall allocation problem and contributing to the observed stability of funding patterns across years. By examining the budget within this type of routine individual decision makers are able to to conceptualize the problem in the constant terms of dollar amounts rather than in differing units such as men or equipment. This also limits the necessity to consider more complex issues of what is to be accomplished with the expenditures of the allocated funds or the ends to which those funds are directed. Formulating the problem in this manner a common referent point is arrived at for the comparing of accounts and as a common basis for the participant's cognitive maps.

In the testing of this model, Crecine proposed that the external environment exerted a relatively minor influence upon the process and its effects were felt indirectly through the total revenue available. He further stated that if this assumption was not true, then the comparisons between predictions and actual expenditures over a period of time would display a low goodness of fit and large residual errors associated with individual accounts. As Crecine states, "...the model was used to generate budget decisions... for the three cities. Model results were then compared with the observed budgetary decisions in the cities (Crecine, 1967: 808)." On the whole the model did appear to predict expenditures quite well with  $R^2$ s of .9980, .9772, and .9975

for the three cities examined, indicating as was postulated that the larger external environment, particularly voter preferences, appear to be relatively unimportant.

Returning to the earlier observed discrepancy between Crecine's conclusions as to the importance of the role played by voters in the determination of budgetary policy vis a vis the need to balance the budget, several alternative explanations are evident. First it must be noted that this work places its major emphasis on the determinants of the expenditure side of the equation with little reference to the determinants on the revenue side. As developed by the Tiebout (1956) assumptions, citizens wishing to maximize their tax dollars will, by moving to another jurisdiction, choose that political entity which offers a blend of public goods closest to their own "tastes. Efficiency is brought about through competition between jurisdictions to offer the most appealing blend of taxes and services. Accordingly, taxes and services cannot be treated as totally separate phenomena. Desirous of a certain level of services citizens will authorize a tax level which affords administrators the ability to provide that level of services although the match may not be absolute. This is consistent with Crecine's hypothesis that the effects of the external environment are mediated through revenue totals. However, that hypothesis does not take into account influences which have gone into the establishment of what for any given year is the budgetary base or the cumulative effects of the small differences which would



follow over a period of years according to the incrementalist perspective. Thus, differences may not be statistically recognizable over a limited period of years. Additionally, if budget decisions are indeed influenced by political demands arising from socioeconomic characteristics, such characteristics are likely to remain relatively stable over a limited number of years.

Deviations in expenditures may be of two types. As indicated one type is those minor changes to the base resulting from the continuation and elaboration of existing policies. Although these changes amply accounted for by the model, this still says nothing about the determination of the base. The second type of changes are unexplained deviations resulting from a shift in policy. In examining unexplained deviations Crecine divides them into those arising from changes in the external environment and those resulting from changes in the internal environment such as different administrations, a lack of model information, or those which cannot be explained.

His analysis revealed two consistent patterns concerning unexplained deviations. One class was associated with the external environment and involved "earmarked" revenues and the terms of negotiated contracts. The other class was associated with shifts in local policy stemming from changes in federal funding, which is consistent with the findings of Kurnow and others. From this Crecine concluded that, "The presence of citizen demands, needs, wants, etc., does not

appear related to 'policy shifts' in any systematic way. This is probably due to the presence of needs, demands, etc., which cannot be fully 'satisfied' given revenue conditions (Crecine, 1967: 812)." In light of what has been pointed out herein concerning several of his assumptions, this does not appear to be a fully defensible statement.

Using much the same theoretical approach and methodology as Crecine, Gerwin (1969) attempted to develop a computer model of the budgeting process using schools systems as its unit of analysis. Because of the difficulty in determining the preferences of citizens necessary for an economics or political science type approach, Gerwin instead developed the model predicated upon discovering the decision rules by which school administrators reduce complexity and choose among alternatives. This is consistent with, and has its roots in, the prior works of March and Simon (1958), Wildavsky (1964), Davis, Dempster and Wildavsky (1966), and Crecine (1970) all of whom found evidence of such rules.

The model was limited to those budget decisions made in conjunction by the school superintendent, business manager, chief accountant, and then with the elected school board. Major subunits of the school were considered external to the model and their only inputs were limited to those of budget requests. The remainder of the assumptions for the model closely parallel those of Crecine, with revenues and the need to balance the budget forming the primary constraints and driving forces, and with decisions made according to standard

account categories. Two normative implications were discovered, one arising from the external environment and one from the internal. The internal constraint was the existence of a priority for departmental funding in the event of surplus monies after initial appropriations were set. Gerwin saw this prioritization as being based on subjective evaluations by the participants and did not pursue its implications as they related to the findings of Crecine (1970). The second variable, stemming from external environmental factors, was that of a comparison to those of adjacent communities, and was a consideration in the initial setting of wages. This is consistent with Crecine's speculation concerning the influence of national and regional norms.

Another study which closely examines the influence of power upon the decision making process was that of Pfeffer and Salancik (1974). Following the coalitional view of organizational decision making the authors attempted to determine how the power of departments within a major university influenced the distribution of funds. The construct of power was operationalized in a number of different ways. Based on interviews with department heads it was determined that the number of graduate students, the national prestige of the department, and evaluations by other department heads could all be used as independent variables tapping different dimensions of departmental power. In conjunction with these variables the researchers also

included the number of major committees served on by departmental members and a universalistic criterion of number of instructional units generated by the department.

Testing of the model found that it was capable of explaining a large portion of the variance in allocations to the departments over a period of years ( $R^2 = .88$ ), with both the number of instructional units and the measures of power significantly contributing to the variance accounted for. It may be noted that the Pfeffer and Salancik model might be somewhat constrained by a number of unaccounted for institutional factors. Because funding is often a zero sum game, with allocations for one subunit coming from a common fund available to all, they speculated that it was not always in the best interests of the stronger units to secure all available funding possible. It was believed that to do so might well place the stronger in a position of potentially eliminating weak departments which it might be to their advantage to keep. This point would seem of particular relevance in light of Etzioni's (1967) criticism of the inevitable underrepresentation of minority views and interests in the allocations process.

The results of study by Greenwood et al (1976) were confined to correlations among the selected variables in order to identify the interactions between the concepts previously developed. Beginning with the environmental setting (population, population density), it was found that there were strong associations with political organization, a

commitment to corporate type planning, the power of the majority party and the rationality of the budget process. This was interpreted as meaning that the degree of complexity, range, and type of environmental problems facing more rural authorities were significantly different those those facing authorities in highly urban areas. As these problems increase in magnitude urban authorities find that acceptance of corporate planning, and the values associated with it, is of more utility in addressing those problems than is the less rational political approach. This finding is also consistent with the position taken in Chapter I of rationality being used as a superordinate value in the attainment of consensus. For as population increases, so too does the heterogeneity of the population with the concomitant differences in values and expectations which make it more difficult for political leaders to appeal to a shared set of values and beliefs about the appropriate roles and activities of government. Thus, appeals to rationality become the legitimizing force behind allocational decisions.

A second consequence following from high population density operated through the fact that the natural constituency of the Labour Party is concentrated in urban areas, giving that party a natural balance of power. Availing themselves of this base the Labour Party was able to organize itself into a disciplined unit increasing their control of the government within those areas. Confronted with this organization the opposition was also forced to organize

itself to a higher degree than might otherwise have occurred. This trend is responsible for the strong significant positive correlation between population density and party organization.

Another finding of interest to the present inquiry was the relationship between patterns of values, interests and power associated with the types of budgetary reviews and outcomes. Specifically, the parameters of budgetary review were found to be related to the power of the chief executive and his management team, as well as the extent of political organization. The greater the power and political party organization, the wider the scope of the review. In turn it was also found that the greater the scope of the budget review the more likely it was that significant reallocation of resources among departments would occur.

When considering these findings in their totality a substantial linkage between external environmental conditions, in this case population density, and budgetary outcomes may be inferred. As population density and its concomitant heterogeneity of the population increases so too does the level of party organization and the power of the dominate party. But for that party to become dominant, it must espouse a particular set of values and programs attractive enough to generate a level of consensus to ensure its assumption and continuation in power. One such set of values are those associated with rationality which are an

integral part of the corporate planning perspective found to increase with population density.

Included within the rational approach to budgeting is the idea of a continuing review of program goals, objective and outcomes. This would account for the positive relationship between the wide parameters or scope of budget review and the presence of a highly rational process. Given a political environment which allows the redistribution of the budget base between departments, as contrasted to only an incremental review of proposed new increases, it would appear that one consequence of such an arrangement might be the ability of government through the budgetary process to respond to changes in the external environment. Extending this argument to its conclusion, it may also be hypothesized that budget outcomes in more urban areas might well be more reflective of actual environmental conditions than those in less densely populated areas which rely on a more political approach to budgeting.

Particularly relevant to several of the issue raised by Greenwood et al is the work of Lineberry and Fowler (1967) whose research was particularly directed at determining the differences in the impact on budgetary policies of reformed vs. unreformed types of city government. The central thesis of the research being that cities having reformed governments would exhibit different budget outcomes than would those having unreformed governments. In conducting this study data

was collected from a random sample of 200 of the 309 American cities which in 1960 had populations of 50,000 or more.

The inquiry was performed using correlational analysis to determine the percent of variation in the dependent variables accounted for by the independent variables. But in a unique addition to the analysis, instead of using the aggregated results for all cities, the cities were divided into groups according to the variables selected as operationalizing the reformed vs. unreformed characteristics. These characteristics were the government type (mayor-council, manager-commission), election type (partisan or nonpartisan) and the constituency type (district or at large elections).

The portion of the analysis of interest here concerns the testing of the hypothesis that socioeconomic cleavages will have less impact on policy choices of reformed than unreformed municipal governments. If this is true a consequence would be better predictions of taxation and expenditure policies for those cities having partisan elections, and mayor and ward arrangements as contrasted to those having nonpartisan elections, with city manager and at-large arrangements.

As a whole the results of the correlational analysis support the author's suppositions concerning the goodness of predictions, with the percentage of variation accounted for in both taxes and expenditures consistently higher for partisan cities. In the total sample the proportion of



variance explained by the twelve socioeconomic variables was 52 percent of taxes and 36 percent of expenditures. This indicates that the type of political structure, at least on the variables indicated, mediates the influence of public supports and demands for taxation and expenditure policies. However, because the authors have defined the dependent variables only in terms of total expenditures and have not broken it down for specific functions, it is not possible to tell the level of association between the political structure and variation in expenditures for any specific function.

Responding to the hypothesis of Wilson and Banfield (1964) concerning the "public regardingness" of middle-class citizens and their willingness to support public policies running counter to their own narrowly defined self-interests Lineberry and Fowler (1967) attempted to address the issue. They hypothesized that the more middle class the city as measured by the level of income, education and occupation, the higher the municipal taxes and expenditures. Results of the hypothesis testing strongly rejected this thesis, and it was instead discovered that class measures were negatively associated with with public expenditures and taxes. When testing the relationship between income levels and the dependent variables a positive correlation was discovered between percent of residents with income below \$3,000 and expenditures, whereas the proportion of the population making \$10,000 or more was negatively associated with expenditures.

While the researchers believed that the percentage of owner occupied-housing also constituted another measure of middle-class composition, this variable was found to be only weakly correlated with income, occupation and education measures. Yet it proved to be the strongest predictor of both expenditure and taxation policies supporting the hypothesis that owner-occupancy and budget levels would be negatively correlated. This is consistent with the understanding that the majority of municipal revenues are based upon property taxes and, as suggested by the failure to support the "public-regardingness" theory, it is in the self-interest of home owners to keep taxes at as low a possible level. It should also be noted that this variable is strongly related to lower population densities. Because higher population densities tend to give rise to factors producing greater demands for services, a negative relationship between home-ownership and expenditures would also be consistent with the available theory.

Interestingly it was found that one measure of the diversity of population, the percentage of population being non-white, had no relationship to variations in the outputs of municipal government. This was taken to suggest a lack of political involvement and power by minorities. Several observations may be made about the validity of this assumption. First, the data upon which this study was based is taken from the 1960s census. Since that time minorities, and particularly blacks, have become much more active in

politics and have had a degree of success in gaining access to the levers of power. This increase in power is sufficient reason to call into question the conclusions drawn from this particular finding.

Secondly, the emphasis in this analysis was on the determination of the direct influence of minorities, with the results indicating that this was little if any. The reverse of this is the possibility that while minorities may have no direct influence, the majority may have differing levels of reactions in response to varying levels of minority presence in the community. An example illustrating this possibility applicable to the instant study would follow from the fact that minorities are disproportionately associated with the commission of crime and often engender a level of fear among the majority population. It is then possible that to some extent this fear of crime and minorities might be translated into policy outputs, particularly those related to programs of social control such as the police.

### Summary

This review of the literature has indicated that there exists a welter of findings and claims resulting from the many different studies which have been conducted in this area. It has also suggested a fairly large number of variables which might be fruitfully pursued within the specified scope of this study. The problem then becomes one

of selecting those variables most likely to significantly influence police appropriations. To accomplish this then implies some selection criteria.

In an earlier chapter a systems model of policy environments, adopted from the work of Hofferbert (1974) and as has been employed by others (Fry and Winters, 1970; Booms and Halldorson, 1973), was presented. One of the key concepts of this model was that it time ordered various classes of variables believed to influence public policy. It would seem that this model, and its associated concepts, might provide the direction needed in the selection of variables for the instant study. If, as predicated by Hofferbert, variables may be ordered according to time in a developmental sequence resulting in some policy outcome, it then makes sense to choose those occurring earliest in the sequence for what amounts to an exploratory study. Once these are established future efforts may then move on to establish an assumed causal path between these variables, intervening variables occurring in subsequent stages of policy development, and the final policy outcomes.

Following upon this reasoning, it can be seen that the earliest stage within which previous research has already identified particular variables influencing governmental allocation policies in general is that of socioeconomic composition. Using this criteria for selection has the advantage of avoiding the argument concerning the relative efficacy of socioeconomic or political variables identified

in the literature review by indicating the while both may be important, the latter class of variables occur at a later stage of policy development and may justifiably be set aside for the moment. And, within those socioeconomic variables identified by the literature review as appearing to be related to policy outcomes, a number appear to have demonstrated significant results across at least several studies.

The review of the literature has made it apparent that the three variables of per capita income, population density and percent of the population living in urban places have become standard variables in the determinants literature whose effects are well documented. While an initial argument may be made as to the possibility of per capita income density, population density, and the intercorrelated variable of population size, being related to differing levels of police funding, percent of the population living in urban places is more nearly appropriate for a study using the state as the unit of analysis and not the city as is this effort. Likewise, variables dealing with state and federal aid are deemed not to be of consequence to this study because of the fact that the amount of such aid earmarked for police activities is negligible. On the other hand the review has also demonstrated that there is ample evidence to suggest that the percentage of owner-occupied dwellings has a significant determinant effect on a broad range of expenditures. So too the variable of population change, as

was suggested by Pidot (1969), might plausibly seem to be an influence on expenditures. However, for different reasons than were suggested by that author. In addition to these variables which have been culled from the literature, there are several other possible variables, unique to our present interest in police funding determination, which which might be advanced.

In the following chapter the formal independent and dependent variable lists will be presented, and, for each independent variable, attention will be devoted to detailing and specifying the means by which it operates on the dependent variables. Once these theoretical relationships have been established, the actual research design and method of analysis will also be presented.

## CHAPTER III

### Introduction

The purpose of this study has been stated as being the construction and empirical testing of a model which will account for a significant portion of the observed differences in funding levels in support of the police function among cities. The general research hypothesis upon which this model is to be based advances the proposition that the outputs of budgetary policy making, in this case monetary allocations in support of a specific function, will vary in response to certain types of values associated with or stemming from socioeconomic characteristics of the communities in question (Masotti and Bowen, 1965). Central to this approach then is the identification of those socioeconomic variables, which will vary among cities, which are believed to be indicators of different demands and supports upon local government as related to the police function.

The review of the literature has established the general utility of such an approach, but has also raised several important issues which must be addressed. The first of these issues concerns the comparison of this particular conceptual model as contrasted to other equally plausible models which were found to exist. In response it is pointed out that such models as have been identified in the literature are not necessarily mutually exclusive and the choice of any one does not imply its theoretical or explanatory ascendancy over the

others. The determination of public policy is an open, complex and lengthy process, analysis of which is poorly served by attempting to artificially limit causal inferences to one particular act or point in time. Indeed, researchers (Campbell et al, 1960: 53) have characterized the end point of political decision making, the vote, as being located in a "funnel of causality" whose opposite end threatens to approach the infinite. Similarly, others (Lazarsfield et al, 1944: 27) have spoken of the act of voting as being a "crystallization" of a process occurring over time.

This is both consistent with, and tends to support, Hofferbert's (1974) and Mazmanian and Sabtier's (1980) model of the policy conversion process as detailed in Chapter 1. In that model, which was based on the two constructs of narrowing and time ordering, socioeconomic factors were seen as occurring previous to and being broader in scope than political factors. Viewing the model based upon this information allows the findings of theories counter to the one advanced here to be more accurately conceptualized as describing differing and temporally later although interrelated dimensions of the same process. Thus, findings which indicate significance contributions by political variables or by bureaucratic behavior and individual decisional aids to the understanding of decision making are but threads of a larger tapestry which to be fully appreciated must be viewed as a whole and not as a set of unrelated parts.



Although in general terms this reduces apparent contradictions between alternative theoretical models and the explanatory variables uniquely associated with them, it does little to argue for the selection of any one particular approach. In fact taken to its logical extension it would seem to suggest development of one grand model subsuming relevant variables from each of the constructs. While this certainly has merit as an ultimate goal, a number of considerations mitigate against doing so.

The first among these considerations being that preceding research has indicated that although certain combinations of variables may explain relatively high levels of variation in aggregate expenditures among cities, the explanatory power of individual variables fluctuate dramatically when applied to discrete functions. This indicates a need to more precisely identify which variables are most strongly associated with which functional budget outcomes. Secondly, by its extension this reasoning also highlights the need to more clearly identify the nature of the relationships or linkages through which specific variables are thought to influence specific categories of outcomes. Although to some extent this has been accomplished for a limited number of functions, there appear to be few, if any, studies which directly address differences in budgetary policy for the police, or develop hypotheses concerning how the specified variables influence police budget outcomes, then subjecting those hypotheses to empirical testing.

To attempt an inquiry sufficiently broad so as to include all potentially relevant variables as suggested by each of the alternative theories identified runs a real risk of becoming so vast that the researcher will be unable to encompass its dimensions (Wildavsky, 1973). For these reasons it is reasonable to conceive and limit the present research as being only one of several which should be conducted, each contributing to and building upon the findings of the others until a total pattern is developed. Because existing theory seems to indicate that the factors influencing the budgetary process may at least be arguably ordered in the form indicated by Hofferbert and others, it is also reasonable to address those variables which are believed to be among the broadest, most elemental, and appearing to occur earliest in the sequence. In this case it is advanced that such factors are represented by variables that are indicative of the socioeconomic characteristics of the community.

It is recognized that this approach risks the danger of inconclusive findings because of the intent not to specify the intervening variables in the causal map (e.g mass political behavior, governmental institutions, elite behavior and the formal policy conversion process). This apparent risk may be justified on several counts. First, the previous research clearly indicates a number of socioeconomic variables which influence total municipal allocations. To determine if these same variables also influence police allocations, and at what levels, is not only a worthy

undertaking in its own right, but one which is of vital interest to police administrators.

Secondly, to attempt to specify all variables which constitute the entire causal map is beyond the scope of most research efforts. Clearly an incremental approach, such as is being suggested here, and which attempts to define those variables occurring earliest in the policy development sequence is a preferable approach. Once these variables have been firmly identified, further efforts can examine the unique and/or mediating influences of variables occurring in the next stage of the process.

A second contribution which may be made by this effort is to address the issue of the generalizability of findings. Many previous studies have used smaller sample sizes, for example Crecine's (1970) work based upon just three cities. Or have used samples from only one state (e.g for example, Masotti and Bowen, 1965). Or have aggregated cities within states and then compared results across states. In these cases the small sample size, the lumping of all cities within a state and the degree of geographic specificity raise questions concerning the extent to which conditions unique to the sites examined were present or were lost through the aggregation, and consequently limited the applicability of the findings to other jurisdictions.

Although the use of a larger sample size within a study increases the probability of any results found being more representative of the population from which it was drawn, it

too raises other methodological concerns. The sampling unit for the majority of determinants studies, as it will be for this study, has been the city. Therefore in any representative sample there will be a distribution of cities along the dimension of population size corresponding to that which will be found in the total population. In the United States this means that there will be a large number with a relatively smaller population and a smaller number with a relatively larger population.

Because of this, the possibility exists that the variables identified as influencing policy outcomes may operate differentially according to city size. In other words, citizens of small, medium and large cities may differ in their concerns and preferences which are then translated into differing demands and supports of the political system as evidenced by differences in budgetary outcomes. Although little research has been conducted in this area, some of that which has been done does indeed indicate that for certain interests, such as population policy, preferences do vary according to the population size of the city (Fuguitt and Zuiches, 1975; Caputo, 1977). This issue will be addressed in more detail within the analysis in the following chapter.

A second problem which may exist is a function of the use of regression model to be applied here, which assumes that the relationship between the dependent and independent variables is linear in nature. Early determinants studies in both America and England found evidence that per resident

costs by city appeared to decline with increased population up to some optimal point, after which they increased again (see Baum, 1971 for a review; Applebaum, 1976). Although more recent studies, such as the Advisory Commission on Intergovernmental Relations analysis of medium-sized cities within various states which thereby standardized for differences between states in methods of financing and the types of service provided (ACIR, 1968), have not supported these findings, the issue of curvilinear relationships between population size and other variables is still not clearly defined or understood.

Taken as a group these reasons indicate another contribution which may be made by this study is to not only enlarge the sample size so as to increase the ability to generalize, but to also conduct separate analyses of appropriate subsamples based upon population size to ascertain the existence of any such differences along the lines indicated.

Accordingly the study will be conducted in two phases, both of which will attempt to empirically test certain hypotheses concerning socioeconomic factors believed to influence differences among cities in the amount of monies budgeted in support of the police function. The first stage will be concerned with examination of the entire population of cities to ascertain an overall picture, with the second section being directed toward determination of any

differences in the effects of the selected variables according to city size.

The remainder of this chapter is divided into sections corresponding to major methodological issues. These sections deal with the selection and composition of the population, and the specification of the research model including the dependent and independent variables as well as a development of the theory outlining the linkages believed to bind the two together.

#### Specification of Sample Population

The unit of analysis for this study shall be the city, with those at issue defined as including all municipalities with a 1970 census population of 25,000 or greater. As used here cities are defined in a manner consistent with the census as being all active governmental units officially designated as city boroughs, villages, or towns (Bureau of Census, 1970). Because data is collected for every city above 25,000 the study approaches being a population of American cities larger than 25,000 rather than a sample.

The limitation of consideration to only those cities in excess of 25,000 in population is done for two reasons. First, the data for cities below the specified size are less available and comprehensive than for those above that figure. Secondly, it is believed that cities with a population below 25,000 often have an extremely limited revenue base from

which to finance city operations. To the extent that this is true the existence of what might be termed discretionary funds, that is those funds available to finance a variety of municipal services beyond a base mandated or politically expected level do not exist, precluding governmental choices resulting in differences as are being examined here.

While the actual presentation of results will be presented in the following chapter, some preliminary discussion of the distribution of cities by size is relevant here as it will effect the analysis of findings. Tables 1 and 2 of Appendix A provide the reader a breakdown of the distribution in increments of approximately 700,000. From the tables above it can be seen there are a total of 952 cities with a 1970 census population exceeding the lower limit of 25,000, with a range of 7,046,564. The mean for the entire population of cities is 96,666 with a high standard deviation of 290,399 representing the presence of a small number of extremely large cities in the population which tend to skew the mean. The first category of cities 25,075 to 729,731 in population accounts for 98.95 percent of the total number to be examined. This confirms the previous suppositions concerning the large number of smaller cities and justifies further breakdown so as to identify any differences which might be masked by overall aggregation. While at first the overwhelming number of smaller municipalities might seem to diminish the reasons for the inclusion of the larger municipalities, it should be pointed out that the ten largest

American cities alone account for in excess of 20 million citizens, the importance of which cannot be ignored. Having defined the population to be examined, attention may now be turned to identification of the dependent and independent variables, their operationalization, and the development of their hypothesized linkages.

### Specification of Variables

Having specified the parameters defining the population of cities to be examined, this section shall be concerned with identifying the dependent and independent variables to be included in the study and delineating the causal linkages through which it is believed they are connected. The general research question has been stated as being: What portion of the differences in funding for the police, between cities, can be accounted for by the identified socioeconomic variables? The dependent variables therefore are assumed to be both valid and reliable indicators of funding for the police. But associated with the level of funding for the police, as measured by the budget level, are a number of other concepts which are deserving of closer examination and explanation.

As it has been outlined the central assumption of the theory underlying this study is the supposition that socioeconomic conditions of the community give rise to peculiar sets of demands and supports of the government which



both influence and are filtered through the political subsystem resulting in responses identified as being policy outputs. In this instance the particular class of policy outputs of interest are those dealing with budgetary policy for the police which will be operationalized as the amount of monies specifically allocated in the budget in support of police activities, excluding those allocated for capital improvements.

In the literature the traditional measure of budget policy has been operationalized as the percentage of the budget earmarked for the function of interest. As used in this manner the variable is a measure tapping a dimension which might be conceived as being the relative importance of that function. It is assumed that those monies which are available for allocation in the budget are finite in nature and will always be inadequate to address all demands for services which will be made upon the government. Therefore choices must be made as to which service will undertaken and at what level. As a total package the budget for any one fiscal period then represents the culmination of a series of foregone opportunities for services and activities which were deemed to be of lesser importance and consequently not undertaken in lieu of those which were funded. When comparing the level of funding for any one item of the budget to any other item the same principal is in operation. The monies represented by that item necessarily represent monies not available for any of the remaining items. Thus, one way of

viewing these outcomes are as being the quantified concrete representations of decisions which rank in relative importance the goals which those activities are conducted in support of.

An alternative method for viewing levels of funding of individual items within the budget combines the concept of relative importance with one of potential impact. Because funds are allocated in support of activities to be conducted in the attainment of goals, there is a general expectation that the higher the level of allocations the greater the potential for impact on goal attainment (an issue that will be subsequently addressed). For the police, monies are allocated with the expectation that efforts will be conducted related to the achievement of community crime reduction, or hopefully its elimination. There is no evidence to indicate that the attainment of this goal is less dearly held in communities with economically poorer residents than in those communities having more affluent residents. Yet there are clearly quantitative and qualitative differences between the two situations.

The amount of money available to government is a result of those taxes citizens vote to levy upon themselves. Collectively these decisions represent a number of individual decisions on foregone opportunities for the private citizen. Income paid in the form of taxes represent value judgements by citizens that the benefits purchased with those monies are of greater importance than those which would be realized if

the monies were to be retained and expended personally for some private function. In a community with a higher level of income the resources potentially available for governmental operations is greater than in those poorer communities. But decisions in the former as to relinquish them to government or retain them for personal use are of a different order than in those of the latter. Whereas a higher level of taxation in a rich community may well involve decisions to forego discretionary personal activities, a greater burden in a poorer community may involve decisions to forego greater levels of more essential items such as better food or housing. Use of the single independent variable of the percentage of the budget allocated for the police does not fully recognize this difference. For that reason a second dependent variable, defined as per capita police expenditures, will be employed. And, when used in conjunction with the control variable of per capita income, will hopefully provide information on this and other issues which could not be addressed through the single dependent variable.

An example of a second issue which may be addressed through the use of the two dependent variables is the ascertainment of additional information concerning preferences for potential benefits perceived by the public and its elected officials to accrue from alternative choices of expenditures. If only the percentage of the budget variable was employed there would be no means for discriminating between two very different levels of budgets.

Clearly, where other relevant factors remain constant, a community with a very large budget, as measured by per capita expenditures, may be different in its potential for choices as to what services and to what levels to fund those services than those choices presented by a very small budget. Yet without information on per capita expenditures this difference cannot be captured. Inclusion of this variable then allows the study to address a question ancillary to the primary research question: As additional revenues become available do communities continue to increase those allocated to the police, or do they increase monies available to the police only to a specific level after which additional funds are used to support other activities?

Implicit in this discussion has been the assumption that a dollar unit of funding in one community will purchase the same level of goal attainment as as a dollar unit purchased in another community. In other words are the activities purchased equally efficient in their level of goal attainment? This is a serious concern in that for this study any conclusions based upon levels of differences in expenditures among communities assumes that they represent true differences in demands and supports, and are not the function of differing levels of funding which come about as a result of varying degrees of efficiency occurring to accomplish the same degree of goal realization, or from differences such as labor costs. Yet, as any observer of

government knows, high expenditures do not necessarily guarantee high achievement. x

To address this issue would require that measures of efficiency and effectiveness also be considered. But to paraphrase others (Mladenka and Hill, 1978: 113), fully satisfactory measures of quality of services are difficult to obtain. Therefore, there is a general consensus that input measures may be considered as one indicator of similar effort in behalf of a shared goal. This has been the position taken by all other determinate studies identified through the literature review as it will be in this effort. However, any interpretation of the results must bear this difficulty in mind.

Figure 3.1 presents a graphic representation of the proposed model showing all dependent and independent variables. At this point no statement as to the relationships between the independent variables is implied, other than that between the variable of total crime rate and its two components of crimes against property and violent crime. Other relationships will be examined in more detail in the following chapter.

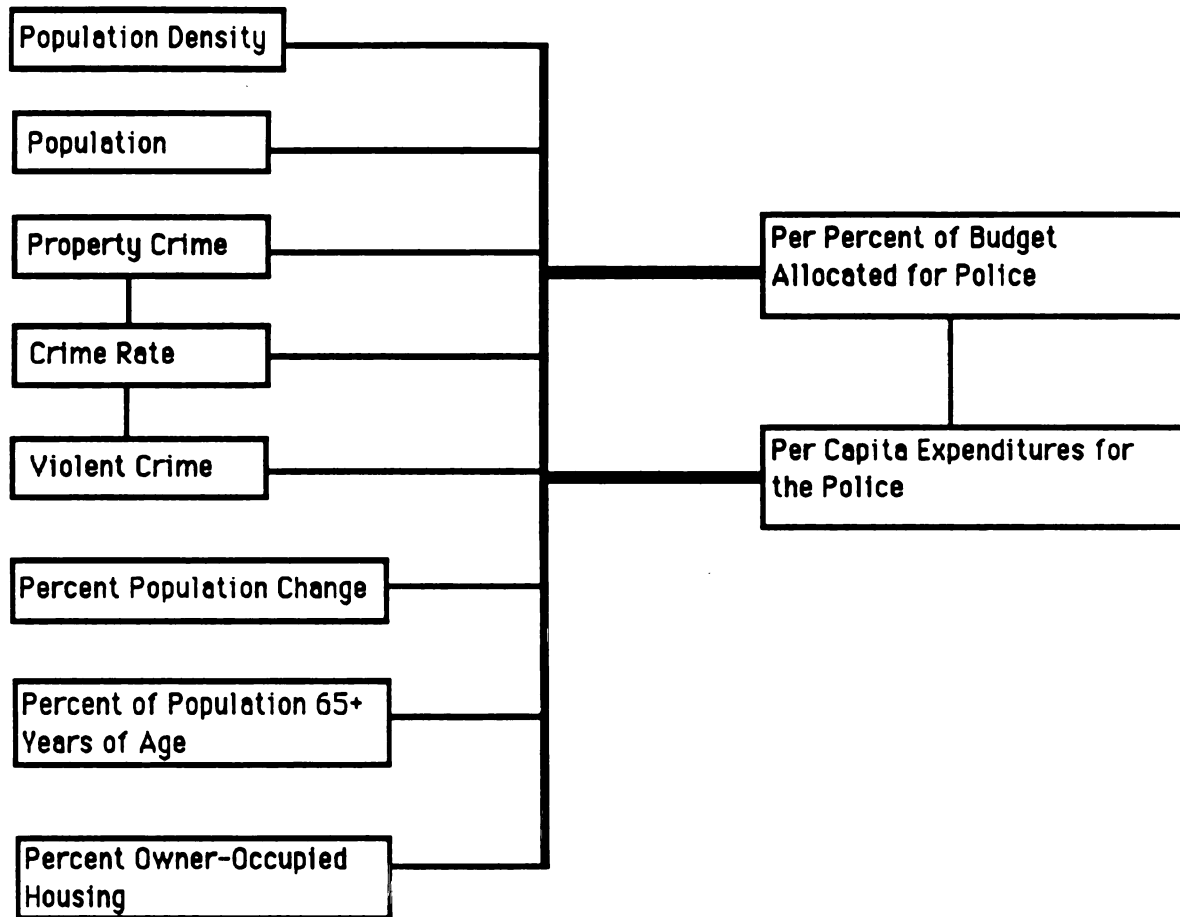


Figure 3.1: Determinants Model of Municipal Police Funding

The first of the independent variables to be addressed are those concerned with establishing the level of crime present in the community. Inherent in the public goods approach to public finance is the assumption of rational choice by individuals confronted with the necessity for choice (Benjamin, 1977). As referred to by economists rationality in this sense is usually based upon the objective standard of maximization of benefits resulting from the choice. However, maximization as the standard for rational behavior is only one of several criteria. Throughout his article Simon (1976) has identified a number of competing types of rationality in decision making which may be more applicable when speaking of public sector budgeting. Among these types most relevant to political decision making are consciously and organizationally rational standards. The former is defined as being behavior which maximizes attainment relative to the actual knowledge of the goal while the latter includes decisions which are oriented to the organization's goals.

Because of the complexity and magnitude of many of the problems addressed through the municipal budget, the absolute standard of goal maximization is often not a reasonable standard by which to judge those decisions. Often the problems are of such a type that the relationship between the means and ends is not well understood or in some instances even known. In these cases the criteria associated with conscious and organizational rationality are the best

which may reasonable be expected. A pertinent case in point is the relationship between budgeting in support of the police and the accomplishment of the goals commonly accepted for the police.

A primary goal of government is to provide for the safety and security of its citizens. Internally the primary governmental function specifically created and provided with what Manning (1978: 7) has called a "mandate" to perform activities toward the accomplishment of citizen safety and security is the police. The National Advisory Commission on Criminal Justice Goals and Standards (1973) has been even more specific concerning the actual nature of this mandate in stating "That if the overall purposes of the police service in America were narrowed to a single objective, that objective would be to preserve the peace in a manner consistent with the freedoms secured by the Constitution... However, because crime is an immediate threat to the order of all communities, the police exist to overcome that threat and to reduce the fear of it. (Ibid: 13)" That the relationship between the means of the police and the ends of the suppression or reduction of crime is widely accepted by the general public is evidenced by the fact that the public "... thinks of the police as an organization primarily concerned with preventing crime and catching criminals. When crime increases or criminals go uncaught, the conventional public response is to demand more or better policemen (Wilson, 1978: 202)". It is this latter assertion of a positive relationship



between levels of crime resulting in public demands for increased levels of police staffing or training which is of interest here.

Following from this logic two points become clear. First, It is apparent that different funding levels for the police in response to differing levels of crime is a consciously and organizationally rational response. Secondly, this implies that a causal chain could reasonably be theorized as existing between differing levels of funding for the police and differing levels of crime. Although if such a relationship exists it is assuredly a complex and indirect one, for the purposes of empirical testing it may be stated in relatively simple form. That form being that there is an expectation on the part of the public that a primary function of government is to provide protection against crime. The means most commonly associated with the goal of controlling crime are the police. Therefore, if crime is at an unacceptable level to a sufficiently large segment of the populace pressure will be communicated to elected officials to take some action to bring it into line with general expectations. The public officials, in their desire to be reelected, respond to this pressure by increasing the level of funding for the police.

The primary threat to the validity of this stated causal chain lies in the mediating influence of differing community perceptions as to the seriousness of a given crime rate. Thus, a two percent increase in crime may be viewed with

sufficient alarm in city A as to result in an increase in funding for the police. In contrast, the same level of increase in city B may well be viewed with little alarm resulting in no funding increase. To the extent that this is true, any true relationship present in the sample as a whole between actual crime level and police expenditures will appear to be weaker or stronger than it really is.

Unfortunately, there are few studies available which would allow us to estimate and control for the influence of such perceptions. Therefore, the assumption must be made that both types of perceptions are equally distributed throughout the population, and that any relationship found between crime rates and police expenditures approximates a true relationship. The first research hypothesis may then be stated as being:

- H<sub>1</sub> There is a positive relationship between the rate of crime in a community, as measured by the Uniform Crime Reports, and the level of funding for the police.

Review of the literature finds relatively few studies directly bearing on this issue. However, several studies have been conducted, the results of which provide a degree of support for the hypothesis. Pressman and Carol (1971) have reported a significant positive correlation between police per capita (a surrogate measure of expenditures) and reported crime rates. Jones (1973) found little relationship between increased expenditures for police manpower and subsequent decreases in crime, but did find a weak relationship between increases in crime and expenditures for the police. It was

suggested that in part this increase was due to the efficiency of additional police personnel in detecting previously unreported crimes. This suggests some difficulty in estimating the direction of the relationship between increased personnel and increased crime.

Greenwood and Wadycki (1973: 139) have addressed this issue in arguing that "it is appropriate to study that segment of of the public sector that provides police protection by means of a simultaneous-equations model, since not only are measured crime rates a function of the number of police employed, but the number of police employed are a function of measured crime rates, via the impact that crime rates have on the expenditures that society chooses to make for police protection. Their results indicated that a one-percent increase in crimes against property induces a 0.29 percent increase in per capita expenditures for police expenditures, and with a similar increase in crimes against persons inducing a 0.13 increase in police expenditures. The data upon which this study was based included a two year difference between the crime statistics used (1960) and the budget year selected (1962). Although this is a relatively short period, questions about the influence of inflation accounting for the observed results may be raised. However, since inflation during this period was relatively low, it is likely that any such influence was minimal. The results indicating that crimes against property have a greater degree of influence upon police expenditures than do crimes against

person are mildly surprising. The authors speculate that this is perhaps due to the interaction between increasing numbers of police and their ability to discover increasing numbers of crimes. Thus, it was suggested that "either police efficiency in detecting relative to preventing crimes against persons is greater than police efficiency in detecting relative to preventing crimes against property, or that relatively more crimes against property are reported (Greenwood and Wydacki, 1973: 141)."

In addition, other studies of intra-city distribution of police services tend to confirm the findings of a relationship between need as measured by crime rates and the level of police resources allocated, with neighborhoods having higher crime rates being assigned a greater level of police coverage than those with lower rates (Mladenka and Hill, 1978)

While the conclusions drawn from these studies tend to support the hypothesis they do bring to the forefront several others factors which must be given consideration. The first concern is that of the accuracy of the measures operationalizing the independent variable of the level of crime, in this case the Uniform Crime Reports. There is a great deal of evidence and it is widely accepted that the UCRs are seriously flawed in that they account for only those crimes known to the police which, with the exception of homicide, are considerably lower than the actual frequency of occurrences as estimated by victimization studies (O'Brien et

al, 1980). This raises the question of the validity of comparisons between cities based on measures known to be inaccurate. In this case the focus is upon differences in the measures of occurrences between cities and not with the accuracy of the measures in absolute terms. Because there is little evidence indicating that the bias of the UCRs is not systematic, that is to say that its inaccuracies are relatively constant and not of substantially different magnitudes and types among cities, its use here would appear to be valid. In addition the large sample size minimizes the effects of any minimal number of cities in which special conditions exist and therefore result in a nonsystematic bias.

A second issue is one raised by the results of the Greenwood and Wadycki study (1973) which found differing types of crimes to have differing degrees of impact upon police manpower levels. The relationship between crime and police funding decisions hypothesized herein stated that if crime is at an unacceptable level to a sufficiently large segment of the populace pressure will be communicated to elected officials to take some action to bring it into line with general expectations. Central to this hypothesis is a subjective awareness and evaluation by the public as to when crime has reached an unacceptable level. But it is unlikely that the public is equally sensitive and responsive too all types of crime. If this is true then it is also equally likely that the public's response in terms of demands,

equating to expenditures in support of the police, upon government will vary according to the type or class of crimes.

As a general rule crimes against persons are viewed as being more serious than crimes against property. On a one to one basis a crime against person such as a murder, rape or robbery is believed to be more to impact upon the public consciousness, at least in terms of individual fear, than a burglary or larceny. Limited support for this has been provided by Toseland's (1982) study of the fear of crime. Given this set of assumptions, and following from the previous hypothesis, the following hypothesis will be tested:

- H<sub>2</sub> There is a positive relationship between crimes against persons and the level of funding for the police.
- H<sub>3</sub> There is a positive relationship between crimes against property and the level of funding for the police.
- H<sub>4</sub> A unit difference in crimes against persons will result in a greater difference in police funding among cities than will a unit difference of crimes against property.

However the hypothesized general relationships believed to exist between the measures of crime and the dependent variables of percent of the budget dedicated to the police and per capita police expenditures do not stand by themselves, but are influenced and mediated by the influences of other variables. Among these one which is believed to be important is the ability to pay for those services. In order to understand how the ability to pay influences police expenditures it is necessary to reexamine the earlier assumption that the taste for police services does not vary

according to income. That is to say that relatively poorer citizens have the same desire for protection and security of their persons and property as do those with a higher level of income. What does vary is their ability to fund those programs, in this case the police, which are believed to provide them such protection and security.

Alternatively, it might also be argued that the ability to pay positively influences the desire for protection resulting in greater expenditures for the police. Although choosing between these two alternatives is difficult at best, the research does provide some basis for inferences leading to the selection of the former reasoning. First, it has been found by at least one study that income is not a primary determinant of the fear of crime (Toseland, 1982). Secondly, it has also been found that a major criticism of police occurring most frequently among poorer people is that the police are not currently providing an adequate level of protection. Taken together these findings provide a measure of support for the belief that poorer citizens have the same desire for protection, if not a greater desire because of their circumstances, than those with greater incomes.

If this is true then the influence of the perceived level of crime on aggregate measures of police expenditures is not direct but operates through the intervening variable of the ability to pay. To examine this proposition a variable measuring this ability, and operationalized as the average per capita income, will be included in the study. But having

specified this variable further examination is merited concerning its effects upon both of the dependent variables and its interactions with the independent variables measuring the levels of crime.

Previous hypotheses stated there is a positive relationship between crime and police expenditures. Therefore, as crime increases so too should expenditures for the police. But this increase is not unlimited. First of all the ability to pay puts a cap on the amount of monies available for funding the police. Secondly subjective judgements must be made as to both the utility of increased funding of the police relative to what results may reasonably be expected in terms of crime suppression, and in terms of foregone discretionary alternatives which might have been carried out with the same monies. In addition to these two constraining factors there is a third concerning the impact of increased funding of the police relative to other legally or politically mandated services.

Taken as a group these concerns raise a number of different possibilities whose tangled threads must be unraveled and tested. To accomplish this several assumptions must be made. The first concerns the ability of the police to accomplish their goals of crime suppression and reduction. It is assumed that under practical constraints no matter how great their level of funding the police will never be able to totally realize their mandated goals. Secondly it is assumed that subject to the availability of funds at some point a



level of crime will be reached which is acceptable to the public. As used here the determination of the level of crime acceptable to the public is a product of subjective judgements relative to the benefits to be derived from extra increments of police funding as contrasted to their investment in some other activity. Following from these statements a number of testable hypotheses may be formulated.

- H<sub>5</sub> There exists a positive relationship between the dependent variable of the per capita expenditures for the police and the independent variable of per capita income.
- H<sub>6</sub> There is no significant relationship between per capita income and the percent of the budget allocated to the police.
- H<sub>7</sub> There is no significant relationship between the level of crime as measured by the crime index of the Uniform Crime Reports and the percent of the budget expended for police activities after controlling for per capita income.
- H<sub>8</sub> There exists a positive relationship between the level of crime and per capita expenditures for the police after controlling for per capita income.

At first blush hypothesis H<sub>7</sub> appears to be in contradiction to hypotheses H<sub>1</sub>. This may be explained by considering how the two independent variables now included are likely to interact relative to their combined influence on the dependent variables. Accepting the propositions that the level of crime always exceeds the ability of a community to fund crime suppression activities at a level sufficient to reduce it to zero (recognizing the impossibility of doing so by police activities alone), and that there will always exist other competing functions which government must or could

undertake provides the explanatory theoretical basis for the two hypotheses. In those communities with a low ability to pay (as measured by per capita income) it is likely that no matter the level of crime the funds available for the police to combat it are in large measure defined by other functions which must be funded, such as sanitation and fire protection. This means that there are few discretionary funds available and the element of choice is removed. The amount for any one program is therefore determined by the level of funding for other programs believed to mandatory. Thus even when the level of crime exceeds the level of community acceptance it is difficult to respond to increased demands by devoting more funding to suppression activities given the constraints of the limited potential for either raising taxes or reducing the amount budgeted for other mandated functions.

As per capita income rises the amount of monies potentially available to government also rises increasing the choices or options available to the community. As we are concerned here, the potential choices involve funding higher levels of police activities, either funding other programs at greater levels or creating and funding new programs, or a combination of the two. If the first alternative is true, the level of crime, as mediated through income, is likely to exhibit a significant positive relationship on both dependent variables (1) resulting in per capita expenditures and, (2) the percentage of the budget allocated the police rising in concert with the crime rate. In this scenario the variable of

per capita income would be also be positively related to both independent variables. The second possibility in which other programs receive increasing levels of funding based on the increased resources available would result in an inverse relationship between per capita income and percent of the budget allocated to the police and a small or insignificant relationship with per capita police expenditures. In this case crime would also have a small or insignificant relationship with the dependent variables because the choice is being made not to respond to crime beyond a fixed level.

The third alternative, of dividing revenues available from higher comparative per capita income among both the police (contingent upon a higher comparative level of crime) and other programs, is the one hypothesized in this study. Cities with greater personal wealth and higher crime rates will pay more per capita for police activities than those with lower crime rates, less personal income, or a combination of the two. For this reason it was hypothesized that there will be a significant positive relationship between the level of crime and per capita police expenditures when controlling for per capita income, as well as a significant positive relationship directly between per capita income and per capita police expenditures.

This then leaves the final combination of the relationship between per capita expenditures and the percent of the budget expended for the police and which is measuring the relative value judgements made concerning police funding.

Following from the principle of diminishing utility people make subjective judgements as to when a unit of expenditure for a commodity will return less in benefit than the previous unit of expenditure. At the same time judgements are also being made as to the efficacy of expending that unit of resource for an alternative activity. It is believed that this principle is in operation with those judgements concerning police funding. This means that citizens either believe that the police are only able to do so much in the way of crime suppression and are willing to fund them only up to that arbitrary point, or alternatively there is a collective determination as to an acceptable level of crime and the amount of funding needed to reach that point. In either event at a certain point excess monies will then be allocated to other functions. The result of this is that the percent of monies allocated to the police will remain relatively stable among cities regardless of the per capita income. For that reason it has been hypothesized that there will be no significant relationship between per capita income and the percentage of the budget allocated to the police.

The preceding discussion develops the argument that crime only influences the absolute level of police allocations indirectly, being mediated by the city's ability to pay for increasing levels of protection in the face of increasing levels of criminal activity. It has also been posited that this relationship is limited in that at some point a collective judgement is made on the part of the

citizenry that additional units of funding for the police are less desirable or beneficial in terms value returned than other alternative uses for those funds. If this is indeed the case then those cities which have greater amounts of monies available to them as well as higher levels of crime should spend also have the highest per capita expenditures for police activities. A valid surrogate measure of city income is per capita city expenditures. For the period of 1971-72 cities of 25,000 to 49,999 population expended \$65.79 per capita, cities of 50,000 expended 92.79 per capita and cities with a population in excess of 100,000 expended 173.85 per capita. From this it is clear that expenditures, and therefore funds available, increase with population. When considering the relationship between crime and population the same general trend holds true with the crime index ranging from 5,402.8 for cities of 25,000 to 49,000 in population to 7,881.0 for cities in excess of 250,000 in population (Federal Bureau of Investigation, 1972). With both the monies available to city government and the level of crime rising in conjunction with increases in population, the following hypothesis may be tested.

H<sub>9</sub> There is a positive relationship between the population of a city and per capita expenditures for the police.

Accepting the proposition that city size and per capita police expenditures rise together attention may now be turned to the relationship between population and percent of the budget accounted for by police allocations. It has also been

advanced that as monies available to government and the level of crime increase police allocations keep pace only to a certain level. At that point judgements are made as to the utility of any higher levels of police funding and monies are instead diverted to other programs believed to be discretionary in nature. Several research findings tend to lend credence to this conjecture. It may be recalled that Dye (1965) found that metropolitan areas in Wisconsin had substantially higher per capita operating cost than did their suburbs, leading him to conclude that the central city was providing the essential physical plant facilities for the entire area. Such findings have led to the advancement of what has been called the urban-suburban exploitation hypothesis, which holds that residents of the suburbs in essence exploit the public services of the central city by drawing heavily on them while at the same time contributing to the urban problems of pollution, traffic congestion, crime, etc. Later findings by Dye and Garcia (1978) found that the average number of functions performed by cities tended to rise with city size. Cities of 50,000 to 100,000 in population performed an average of 9.2 functions, while those in excess of 1,000,000 in population performed an average of 11.8. And, as would be predicted by the "urban exploitation" hypothesis these additional services tended to be for such nonmandated functions as libraries and health services (hospitals), supporting the conjectures made here. It is then likely that when looking at the total number of cities, the

independent variable of population will have little or no effect on variations in the percent of the budget accounted for by police expenditures. This will be examined through the testing of the following hypothesis:

H<sub>10</sub> There is no significant relationship between city population and the percentage of the budget allocated for police operations.

Another aspect of population believed to be relevant to the determination of police expenditures is that of population change. This is defined here as the percentage of change in population between the years of 1970 to 1980. As cities grow new demands are placed upon municipal government for the provision of services. Yet because of the general reluctance on the part of the public and elected officials to raise taxes, revenues for those new services will often lag behind growth. Consequently decisions must be made as to which existing services will receive increased levels of funding or which new services will be added. Consistent with the funding hierarchy developed earlier it is believed that the essential mandated activities such as police, fire and sanitation will be given priority for any increase in allocations. It is only after these services are brought up to a certain level and some sort of a new equilibrium is reached in regard to revenue levels that other nonessential demands such as libraries, parks and recreation will be addressed.

For the police the net effect of higher funding as a result of population growth would be to increase their

allocations both as a percentage of the budget and on a per capita basis relative to cities of a similar size with a more stable population. It is then hypothesized that:

- H<sub>11</sub> There will be a significant positive relationship between the percentage of city growth over the period 1970 - 1980 and per capita expenditures for the police.
- H<sub>12</sub> There will be a significant positive relationship between the percentage of city growth over the period 1970 - 1980 and the percentage of the budget allocated for police activities.

To the present time this study has been dealing with combinations of one general indicator of taste for the focal service, that being the level of crime, and one indicator of the ability to pay, per capita income. At this point another consideration may be introduced which attempts to account for an overall willingness to pay for governmental services. As has already been stated the primary source of municipal government's funds is the property tax, augmented to some extent by local sales taxes where present. The literature has suggested property ownership as one significant source in variations in the willingness to pay for governmental services in the form of taxes (Pidot, 1969; Yinger, 1982). Attitudinal differences are believed to exist between those who own and reside in their housing as particularly contrasted to those who rent. It is advanced that renters are less sensitive to property taxes than are owners and for that reason may be more willing to vote for tax increases to fund services while home owners would be less willing to vote for increases. These then leads to the following hypothesis:



H<sub>13</sub> There is a significant inverse relationship between the percentage of owner occupied housing in a community and the per capita expenditures for the police.

It must be noted that this particular effect is not unique to the police but is associated with total levels of taxation, and therefore the total amount of revenues available. Indeed it is likely that home owners might be more supportive of the police than others. There are at least two alternative reasons why this might be so. While home owners bear a large burden of the most common revenue source, the property tax, it is also true that in terms of material goods home owners have more to protect and although in general terms would be desirous of keeping taxes at a minimum also would be supportive of expenditures for the protection of their investments. The result being that although per capita expenditures would be negatively effected through the demands placed upon government to keep taxation, and consequently revenues available for expenditures, at a relatively low level there would be a higher level of demands to use a greater proportion of those funds for the police.

A second alternative explanation, but one which is not necessarily exclusive from the first, centers around the fact that home ownership requires the outlay of a substantial investment taking some time to accumulate. It is probable that in most communities those owning homes are generally older than the average age for the community as a whole. Numerous public opinion polls have demonstrated that support for the police is correlated with age and is usually highest

among older citizens (Harris, 1981), which may then translate into a demand for a greater level of police services and expenditures.

These possible relationships between home ownership and the percent of the budget set aside for police activities will be tested by the following hypothesis.

H<sub>14</sub> There is a significant positive relationship between the percentage of owner occupied housing and the percent of the budget allocated in support of police activities.

The next variable directly addresses one of the major underlying theories of determinant studies predicated upon socioeconomic variables. The being that socioeconomic diversity among cities results in differing demands and supports of government which in turn leads to variations in policy outcomes. A major variable often associated with such differences is that of age. It is also true that age is a variable particularly relevant to the police. It has already been demonstrated that support for the police varies according to age, with citizens 65 and older being most supportive.

Age also seems to be a factor in the formation of subjective evaluations concerning the seriousness of crime. Furthermore this evaluation is formed by groups of people independently of the actual probability of their being victimized or to actual experiences as victims (Garofalo, 1979; 200; Toseland, 1982; Liang and Sengstock, 1981). Research has indicated that in particular, fear of crime seems to be highest among the elderly (Erskine, 1974; Sundeen

and Mathieu, 1976; The Select Committee on Aging, 1977; Yin, 1980). All other things being equal the demand for police services should be greater in those communities having high proportions of elderly citizens. This will be examined in testing the following hypotheses.

H<sub>15</sub> There is a significant relationship between communities having a high proportion of citizens age 65 the percentage of the budget allocated for police services.

H<sub>16</sub> There is a significant relationship between communities having a high proportion of citizens age 65 and per capita spending for police services.

The final variable to be included in the study is population density, one which has generally found to be significantly related to variations among cities in total expenditures. It differs from previous variables in that those were believed to influence levels of policing funding through their impact upon demand for services. In contrast population density in that it is felt to influence funding through supply side factors. This is consistent with the the position that the desire for protection against criminal activity is constant across the population. Therefore there is no discernible reason why there should be differences in demand for police service along the dimension of urban-rural as measured by population density.

However, there are at least two related reasons why population density may effect the supply side of the equation, and thus the cost in the provision of police services. As noted by Ohls and Wales (1972: 425), "A densely populated state may spend a relatively large amount of money

on police protection, not because residents of such states desire a lower crime rate but rather because the density of the state's population makes the cost of given levels of police protection relatively high."

Although this would seem to run contrary to the general theory that savings are often realized through the supposed economies of scale with a larger organization, it has been claimed that the extra costs of maintaining such things as precinct headquarters offset other benefits (Walzer, 1970). In addition it is also plausible that manpower costs, which constitute the major share of actual police expenditures are highest in those older, urban, industrial cities most characterized by high population densities. This will be tested by the hypotheses of:

- H<sub>17</sub> There is a significant positive relationship between population density and the percentage of the budget allocated for the police function.
- H<sub>18</sub> There is a significant positive relationship between population density and per capita police expenditures.

Having specified each of the independent variables to be examined and their expected relationships with the dependent variables the following research hypotheses may be formed.

- H<sub>19</sub> A regression model with the independent variables of population, percentage of owner-occupied housing, percent of population change, per capita income, population density, crime rate, and percent of the population age 65 and older is capable for accounting for a significant portion of the variance between cities in the percent of the budget allocated for the police.
- H<sub>20</sub> A regression model with the independent variables of population, percentage of owner-occupied housing, percent of population change, per capita income, population density, crime rate, and percent of the

population age 65 and older is capable for accounting for a significant portion of the variance between cities in per capita expenditures for the police.

This then concludes the development of the research model including the variables thought to influence differences among cities in budgetary policy outcomes as they concern the police. Although the following chapter will provide more specificity, the utility of the model in explaining factors responsible for variations among cities will be tested through the use of multiple regression analysis with the equations being run simultaneously for each of the dependent variables. Once this has been done and the results analyzed, the analysis will be performed once again, only this time breaking down the population into categories based on city size. The intent of this procedure is to discover if any of the relationship specified by the model are curvilinear rather than linear in nature. The results obtained here will then be contrasted to the results obtained from the total population.

## CHAPTER IV

### Introduction

Proceeding from the framework established within the preceding three chapters, we will analyze each of the previous hypotheses identified in the research design. These hypotheses all pertain to the relationship of selected socioeconomic variables to measures of police funding and, as a central research question, the issue of whether a linear model composed of a number of these variables is capable of accounting for a substantial portion of variance in police funding among cities. While the focus is clearly upon variations among cities, this should not lead us to lose sight of several other perhaps equally important points inherent within the broader research question. These include which socioeconomic variables seem to exert the most influence upon budgetary decision making within the context which has been specified, testing of the linkages believed to interconnect dependent and independent variables, identification and explanation of any differences in police budgeting which may occur according to city size, and finally the broader questions of budgetary policy determination as it relates to the police.

The analysis will be subdivided into five sections: (1) an overview of baseline data for each of the dependent variables, (2) an examination of the individual relationships between the independent and dependent variables, (3) an

analysis of the linear model including each of the independent variables identified as being relevant within the preceding section, (4) analysis of the linear model applied to categories of cities as determined by their population, and finally, (5) an section employing stepwise regression as the analytical tool.

### Analysis of Baseline Data

Because the literature has been rather sparse in its treatment of police budgeting determinants some little attention must be given over to a brief presentation of the phenomenon under examination. In doing so it is intended that the reader will be able to develop, in at least a general sense, a perspective on average funding levels for police and the extent of the variation in those averages. The following paragraphs provide this information taken from the tables found in Appendix A which provide the summary statistics for each of the dependent and independent variables.

For the 940 of the 952 cities in the specified population reporting data, the mean per capita expenditure in support of police activities (excluding capitol expenditures) was \$63.22. The standard deviation about this mean being \$25.99 and the range running from a low of no monies expended for police by two cities to a high of \$238.89. When examining the information detailing the distribution of the percentage of budget allocated for police a mean of 15.29 percent was

found with the range running from the low of zero to a maximum percentage of 45.886.

Insofar as comparable, the findings for this latter variable roughly correspond to those Odoni (1977) found in the 1960s and early 1970s, allowing some speculation as to their stability over an extended period of time. It may also be observed that such a finding would be consistent with the incrementalist perspective of budgeting behavior. However, as was also pointed out by Odoni (Ibid), the period with which he was concerned was also a time in which there were substantial increases in crime which, in constant dollar terms, did not appear to result in any corresponding increases of funding for police. Such findings would seem to be in contrast to several of the hypotheses which were stated in earlier chapter here.

Because of a concern that the large number of relatively smaller population cities in the population would tend to mask differing conditions in the smaller number of cities with greater populations, it was determined that a separate analysis should be conducted breaking down the population of cities according to size. Again a review of the relevant literature found few guidelines as to which criteria might be relevant to this particular study. Among the few which were identified, the categories employed by Highsmith and Nathan (1968) are representative. Those authors suggested that settlements might be classified as either being medium-sized cities (25,000 to 100,000), large cities (100,000 to



800,000), a metropolis (800,000 to indefinite size, but at a maximum of several million), and an ecumenopolis (indefinite in size but likely to be towns of millions). These categories appeared to be somewhat unsatisfactory for the population selected here with insufficient differentiation between cities of 25,000 and 100,000 where the majority of American municipalities lie. For that reason it was arbitrarily decided that the same categories as employed by the Department of Commerce, 25,000 to 49,999, 50,000 to 99,999 and 100,000 and greater, would initially be employed here.

Comparison of the results for each of the separate categories to each of the others and to those obtained for the population as a whole (see Appendix A for complete tables), illuminates what appear to be significant differences between categories. As cities increase in population the mean percentage of the budget allocated the police decreases from 15.92 percent to 14.97 percent to 13.66 percent for each category respectively. Coinciding with this is a decrease in the standard deviation by about one percent from smaller to larger cities. In contrast, per capita expenditures for police rise in concert with city size from \$58.18 to \$79.28. However, the size of the standard deviations (24.741, 22.00, and 28.656) and the standard error (1.083, 1.397 and 2.189) indicate there is more dispersion about the mean for the largest class of cities. This result was felt to be attributable to the fact that this category was also greatest in terms of range of city sizes and the

dispersion might well be reduced if further distinctions were made. To test this assumption two new population categories were created: cities with populations of 100,000 to 249,999 and cities of 250,000 and larger.

The results obtained when using these four population categories were as might be expected. For the four population categories the figures now obtained for the mean percentage of the budget were 15.919, 14.969, 14.015, and 12.924. The standard deviations of 7.448, 6.627, 6.263, and 4.207 also exhibited the expected decrease in size. For per capita expenditures for police the trend of increases in expenditures with increasing population was maintained with results of \$58.18, \$62.82, \$72.20, and \$93.69. Standard deviations reported were now 24.74, 22.0, 22.306, and 34.43. This identified pattern of increasing city size, decreasing percentages of the budget allocated for police, and increasing per capita police expenditures, would be consistent with the previously stated supposition that larger cities tend to have greater revenues available to them and therefore have a greater degree of latitude in the choices they may make concerning the funding levels of alternative programs.

However, to begin to determine if these apparent variations are solely the result of increased availability of funds or if other variables influence the observed allocational patterns, an additional test was made. Assuming that total expenditures are a reasonable surrogate measure

for city revenue (because most cities are required by statute to balance their budget during each fiscal period), the the correlation between population and total per capita expenditures should explain a high level of the variance among cities if it is only the availability of revenues which is responsible for differences in police allocations.

Having presented the baseline information we may now proceed to a testing of the various hypotheses which have been advanced. Thus, the following section will consist of two parts. The first part deals with those hypotheses which are concerned with establishing the relationship between the various independent variables and the two dependent variables. The second part will examine these relationships in order to determine which combination(s) of variables are suitable for inclusion into a linear regression model for testing of the remaining hypotheses.

#### Examination of Individual Relationships

Those factors which have been specified as thought to influence police budget allocations are the crime rate (as a total measure as well as for crime against persons and crimes against property individually), city population, city population density, per capita income of city residents, the percentage of city population growth between 1970 and 1980, the percent of all homes which are owner occupied, and the percent of the city population which is age sixty-five or

greater. The relationships between each of these variables and the two dependent variables is presented in Table 4.1 below.

When considering each of the independent variables, our focus is inevitably drawn to the relationship between measures of crime levels and police funding. Intuitively it seems logical to expect that there should be a strong correlation between the two if the budget is perceived to be a rational organizational response to conditions confronting collectivities in their external environment. Although there is a degree of face validity to the assertions, the little empirical research in this area provides only mixed support for such an assumption. Jones (1973) in his examination of 155 cities over a twelve year period found that year to year changes in police expenditures or manpower had virtually no relationship to changes in index crimes, with the sole exception being robbery which exhibited a small degree of significant influence. In their factor analysis of the impact by the environment, Morgan and Swanson (1976) reported a mildly significant relationship at the .05 level between their expenditure/manpower factor and a crime factor measuring crime magnitude. This same study found no relationship between expenditure/manpower and recent crime increases, therefore tending to support the Jone's findings.

Table 4.1

## Correlation Matrix For Independent and Dependent Variables

|  | Prop.<br>Crime<br>Rate | Violent<br>Crime<br>Rate | Popu-<br>lation | % Owner<br>Occ.<br>Housing | %Pop.<br>Change | Crime<br>Rate | Per Cap<br>Income | Pop.<br>Density | % 65+ | % Budget<br>for Police | Per Cap.<br>Expend.<br>for Police |
|--|------------------------|--------------------------|-----------------|----------------------------|-----------------|---------------|-------------------|-----------------|-------|------------------------|-----------------------------------|
| Property<br>Crime<br>Rate                      | 1                      |                          |                 |                            |                 |               |                   |                 |       |                        |                                   |
| Violent<br>Crime<br>Rate                       | .671*                  | 1                        |                 |                            |                 |               |                   |                 |       |                        |                                   |
| Popu-<br>lation                                | .103                   | .224*                    | 1               |                            |                 |               |                   |                 |       |                        |                                   |
| % Owner<br>occupied<br>Housing                 | -.306*                 | -.393                    | -.173           | 1                          |                 |               |                   |                 |       |                        |                                   |
| % Popu-<br>lation<br>change                    | -.088                  | -.064                    | -.023           | .12                        | 1               |               |                   |                 |       |                        |                                   |
| Crime<br>Rate                                  | .985*                  | .771*                    | .133            | -.345*                     | -.089           | 1             |                   |                 |       |                        |                                   |
| Per<br>Capita<br>Income                        | -.173                  | -.276*                   | -.034           | .343*                      | .029            | -.205*        | 1                 |                 |       |                        |                                   |
| Popu-<br>lation<br>Density                     | .014                   | .300*                    | .248*           | -.448*                     | -.072           | .078          | -.044             | 1               |       |                        |                                   |
| % 65+  | .168                   | .149                     | .006            | -.101                      | -.063           | .173          | -.005             | .111            | 1     |                        |                                   |
| % Budget<br>for Police                         | -.025                  | .017                     | -.059           | .198*                      | .128            | -.022         | .211*             | .130            | -.076 | 1                      |                                   |
| Per Capi-<br>ta Expen-<br>diture for<br>Police | .448*                  | .441*                    | .240            | -.264                      | -.028           | .470*         | .238*             | .250*           | .17   | .217*                  | 1                                 |

\* Indicates significance at .05 level.

Hypotheses  $H_1$  through  $H_3$  each deal directly with the relationship between standard measures of crime and the level of police funding.  $H_1$  is the most general of the four and advances the proposition that the level of serious crime, as measured by the Uniform Crime Report's Part I Index (composed of homicide, rape, robbery, aggravated assault, burglary, larceny, and motor vehicle theft) is positively related to both dependent variables. As presented in the correlation matrix, and contrary to expectations, the relationship between the crime rate and percent of the budget allocated for the police is  $-.022$ , although it does appear to be strongly related to per capita police expenditures ( $.470$ ).

Based on only these results several alternative explanations suggest themselves regarding the apparent lack of association between the crime level and the police percentage of the budget. The most obvious is that the results are indeed indicative of a true lack of relationship between the two. This would be consistent with a situation where categories within budgets are relatively stable and, as noted by Crecine, the decision aids employed by elected officials tend to preserve this stability by dealing in only incremental changes which are driven by the availability of revenues.

A second possibility is that the variable of total Index Crime is too gross a measure, and, if reduced to its constituent parts of crimes against persons and crimes against property, a more accurate picture of the relationship

between crime and police funding may be obtained. Referring back to Table 1, it may be seen that each of the separate correlations for the two variables to percent of the budget allocated for the police are relatively the same as for that of the combined measure. When considering per capita expenditures for the police, the correlations obtained for the two separate measures of crime are somewhat less powerful than for the combined measure. Therefore it would appear that nothing is gained by distinguishing between crimes against persons and crimes against property.

A third possibility is that an actual connection does exist but is of a complex and indirect nature, masked by the presence of other intervening variables which, when specified and controlled for, will become manifest. This possibility is consistent with the suggestion advanced previously that the level of crime only influences expenditures for the police when the revenue available to a jurisdiction exceeds that needed to minimally fund all functions believed to be mandatory at a base level plus the agreed upon yearly increment, allowing discretionary decisions to then be made. Testing of this more complex relationship will be examined in the following section through the use of the regression model.

In order to ultimately examine the influence of the amount of monies available to municipalities on the the funding of police activities, the independent variable of per capita income was selected for inclusion in the model. The

amount of monies expended by a community is believed to be at least partially a function of those monies potentially available to that communities' government. Although many factors may influence the aggregate community decision as to the particular level it wishes to be taxed in support of governmental services and activities, per capita income still remains a prime measure of ability to pay. As a general rule, an ascending ability to pay should result in increased expenditures for the police as stated in Hypotheses  $H_5$ .

Furthermore, as increments of monies potentially available increase, there would be a resulting increase in the level of revenues available beyond that needed for satisfaction of mandatory programmatic requirements. The argument has been advanced that these monies will, at some unknown point, be used to fund other ancillary functions such as parks, hospitals or recreational service. The net effect of these decisions would result in an outcome of increasing per capita expenditures overall but with no corresponding increase in the percentage of the budget allocated for the police.

Testing of Hypotheses  $H_5$  and  $H_6$  finds that the former is supported with a correlation of .238, while the latter with a correlation coefficient of .211 is not. Thus, it would appear that all other things being equal, those communities with more affluent residents are willing to spend more for police protection both as a percent of their total budget and on a per capita basis. There are several alternative, although not mutually exclusive explanations for these findings. The first



is relatively straight forward, being that people with higher incomes have more to protect and thus are willing to pay greater amounts on a per capita basis for police services. The second, as it regards the findings of Hypothesis  $H_6$  is that those communities with higher per capita incomes are generally smaller and suburban in nature (indeed the correlation between income and population although not significant is in the expected negative direction). Therefore, as pointed out by Dye (1965) they often exploit the services of neighboring central cities and may thus spend less for or not provide many functions. If such is the case, it is then logical that police services would constitute a larger percentage of their budgets.

Hypothesis  $H_9$  stated that there would be a positive relationship between city population and per capita expenditures. This was predicated upon the belief that larger cities having, as a general rule, more resources available to them would spend more for governmental services. These increased expenditures would then be reflected in higher per capita expenditures for the police. In contrast,  $H_{10}$  postulated that the same variable would not be significantly related to the percentage of the budget allocated for police activities. This was based upon the works of Dye (1965) and others (Dye and Garcia, 1978), who reported that the operating costs and number of municipal functions performed tended to rise with population. These findings led them to conjecture that large cities tended to act as the

provider of nonmandated services which were heavily used by suburban residents. One consequence of this would then be that although more funds might be available overall, the funding of the additional nonmandated programs would result in the percentage of the budget allocated to the police remaining stable even though per capita expenditures might increase.

As was predicted, the relationship between population and per capita expenditures for the police was in the expected direction and relatively strong with a correlation coefficient of .240. Also as predicted, the relationship between population and percentage of the budget allocated for the police was weak with a correlation coefficient of -.059. Even though the strength of this association was as expected, the negative direction of the relationship is somewhat surprising.

Hypotheses  $H_{11}$  and  $H_{12}$  were both concerned with the influence of the percentage of city growth between 1970 and 1980, stating that this variable would be positively related to both dependent variables. For the police percentage of the budget, population change was positively correlated with a correlation coefficient of .126. In contrast, while the relationship between percent of population change and per capita police expenditures was positive, the strength of the relationship was substantially weaker and negative in direction with a coefficient of -.028. This observed pattern would tend to support the ideas that as cities grow in

population they tend to first increase their funding of basic services in response to the new demands generated by that growth. Conversely, the expected pattern for older, more established cities, with a relatively stable population, would be one of higher per capita police expenditures constituting a lower percentage of the overall budget. Although not directly tested for here, this raises the issue of differing funding priorities and allocational patterns according to where a particular city is in its historical development.

Hypothesis  $H_{13}$  predicted that there would be a significant inverse relationship between the percent of owner occupied housing and per capita police expenditures. Homeowners, being more sensitive to property tax rates than renters, would generally desire to hold down the overall tax burden which would then be reflected in across the board per capita expenditures. The result did confirm this negative association with an correlation coefficient of  $-.264$ .

For hypothesis  $H_{14}$  which stated that the relationship between owner occupancy and the percent of the budget expended for the police would be positive in the direction of association, the results were as expected. This hypothesis was intended to test the proposition that that homeowners, anxious to protect their investments, would influence city government to devote a greater percentage of their resources to the police. However, with its correlation coefficient of

.198 it is apparent that it is somewhat less of a factor than for the other dependent variable.

Hypotheses  $H_{15}$  and  $H_{16}$  both suggested a positive relationship between the percentage of the population aged sixty-five and older and each of the dependent variables. Because of the increased real and perceived vulnerability of senior citizens to criminal acts it was believed that they would support higher funding levels for the police. The results of the correlation matrix show that the relationship to per capita police expenditures is indeed in the positive direction predicted. However, for percent of the budget for police the result although insignificant exhibits a negative relationship. Although these findings cannot be readily explained given the information available, one possibility may be conjectured as being that/ even though seniors may fear *a* crime more than other population groups they also have other specialized demands such as better health care services. It may then be that given limited financial means, fixed incomes, and a desire to keep taxes low, they are making choices for those alternative services rather than for increased police protection.

The relationship of the final variable of population density was addressed by hypotheses  $H_{17}$  and  $H_{18}$  with both projecting a positive contribution to each of the dependent variables. These hypotheses were based on the findings of previous determinants studies (Fabricant, 1952; Fisher, 1964; Sacks and Harris, 1964; Bahl and Saunders, 1965), each of

which found population density to be a significant contributor to variations in per capita expenditures. As was predicted, population density was found to be positively related to variations among cities in both per capita expenditures and percentage of the budget for police.

In conclusion, this section has established the general degree of association between each of the dependent and independent variables. The next step is then, through the use of multiple regression, examine the relative separate weights of influence for each of the independent variables while controlling for the effects of the others. Prior to do so, it is first necessary to examine the problem of multicollinearity.

### The Presence of Multicollinearity

Since the objective of this study is to determine the individual influences of each of the independent variables upon the dependent variables through the use of a regression model, the problem of multicollinearity must be given consideration. Multicollinearity is defined as a situation where there is a high degree of correlation between combinations of independent variables. Where such conditions exist, it is impossible to make accurate estimates of the unique influences of the effected independent variables upon the dependent variables. A preliminary examination of the independent variables already specified raises questions as

to the possibility that there may be such intercorrelations between them. For example, it is almost assuredly true that there is a strong relationship between the total crime index and the rate of crimes against persons. Although high simple correlations are neither necessary nor sufficient in identifying intercorrelation, a matrix of simple correlations can provide a great deal of useful information (Hanushek and Jackson, 1977: 90). This information has already been provided in Table 1, and from that we can at least begin to partially identify potential candidates which might cause problems in the estimation.

Not surprisingly the matrix shows that a number of the independent variables are strongly correlated. As would be anticipated, both violent and property crimes are strongly related to each other, as they are to the total crime rate. The percent of owner occupied housing is negatively correlated with violent, property, and total crime rates, and population density, while being positively associated with per capita income. Per capita income is also negatively associated with the total crime rate. Finally, population is strongly associated with all measures of crime, as is population density, although less strongly so in the latter instance.

Taken as a whole these correlations contain few unanticipated relationships and are generally consistent with what has been described by other researchers. Crime is a phenomenon of large cities, with high population densities

being one of the social indicators generally associated with high crime rates. Another social indicator of conditions believed to influence the level of crime is poverty, which is in part measured by the per capita income variable and explains its negative association. So too is home ownership an indirect measure of wealth and a similar association would also be anticipated, with the negative correlation between owner occupied housing and population no doubt reflecting the increased cost of housing in larger communities with the concomitant result of fewer people being able to afford the luxury of home ownership.

Given the strength of association between several independent variables it appears as though multicollinearity may, in some instances, pose a problem when trying to interpret the contribution of the individual variables. Most particularly this seems to be a problem if the variables of property crime rate and violent crime rate are to be included in the regression model. Both of these two are most strongly intercorrelated with the variable of crime rate (.991 and .793 respectively). Comparison of the correlations for these three variables to each of the independent variables also finds relationships of approximately the same magnitude. Therefore, it appears as though little explanatory power will be lost by retaining only the composite variable of crime rate in the regression model. In addition, based on these correlations, hypothesis  $H_4$  which stated that a unit difference in crimes against persons would result in a

greater difference in police funding among cities than would a unit difference of crimes against property does not appear to be supported.

### Analysis of Linear Models

Having examined the relationship between each of the individual independent variables and dependent variables, we may now proceed to testing the full model. The results of the equations are presented below with Tables 4.2 and 4.3 examining the percentage of the budget allocated for the police, while Tables 4.4 and 4.5 provide similar information on per capita expenditures for the police.

In terms of general observations a review of the tables finds that each of the models is capable of accounting for a significant portion of the variance among cities for each of the measures of police funding. However, the level of variance accounted for in per capita expenditures, with an  $R^2$  of .422, is almost three times as large as that accounted for in the percentage of budget model whose associated equation has an  $R^2$  of only .142. When examining the contributions of the individual independent variables in the two pairs of equations, and accepting a significance level of .05, only the percentage of population change 1970-1980 fails to achieve significance for per capita expenditures. Because suppositions underlying this model are heavily rooted in measures of community wealth, a tentative explanation for the



Table 4.2

Results of Regression Model for Percent  
of the Budget Allocated Police

| DF: | R:   | R-squared: | Adj. R-squared: | Std. Error: |
|-----|------|------------|-----------------|-------------|
| 903 | .385 | .148       | .142            | 6.317       |

| Analysis of Variance Table |     |              |              |           |
|----------------------------|-----|--------------|--------------|-----------|
| Source                     | DF: | Sum Squares: | Mean Square: | F-test:   |
| REGRESSION                 | 7   | 6231.7       | 890.243      | 22.312    |
| RESIDUAL                   | 896 | 35750.06     | 39.9         | p = .0001 |
| TOTAL                      | 903 | 41981.76     |              |           |

Table 4.3

Beta Coefficients for Regression Model of  
Percent Allocated Police

| Parameter:         | Value:    | Std. Err.: | Std. Value: | t-Value: | Probability: |
|--------------------|-----------|------------|-------------|----------|--------------|
| INTERCEPT          | -.455     |            |             |          |              |
| % Owner Occu...    | .148      | .02        | .283        | 7.268    | .0001        |
| Population         | -2.089E-6 | 7.379E-7   | -.091       | 2.831    | .0047        |
| % Pop.Change ...   | .003      | .001       | .111        | 3.577    | .0004        |
| Crime Rate         | 2.742E-4  | 7.730E-5   | .12         | 3.547    | .0004        |
| Per Capita Inco... | .001      | 1.219E-4   | .145        | 4.35     | .0001        |
| % 65 yrs @ ov...   | -.123     | .042       | -.092       | 2.917    | .0036        |
| Pop. Density       | .001      | 7.384E-5   | .295        | 8.232    | .0001        |

Table 4.4

Results of Regression Model for Per Capita  
Expenditures for Police

| DF: | R:   | R-squared: | Adj. R-squared: | Std. Error: |
|-----|------|------------|-----------------|-------------|
| 903 | .653 | .426       | .422            | 19.3        |

| Analysis of Variance Table |     |              |              |           |
|----------------------------|-----|--------------|--------------|-----------|
| Source                     | DF: | Sum Squares: | Mean Square: | F-test:   |
| REGRESSION                 | 7   | 248180.634   | 35454.376    | 95.179    |
| RESIDUAL                   | 896 | 333762.378   | 372.503      | p = .0001 |
| TOTAL                      | 903 | 581943.011   |              |           |

Table 4.5

Beta Coefficients for Regression Model of Per Capita  
Expenditures for Police

| Parameter:         | Value:   | Std. Err.: | Std. Value: | t-Value: | Probability: |
|--------------------|----------|------------|-------------|----------|--------------|
| INTERCEPT          | 3.906    |            |             |          |              |
| % Owner Occu...    | -.315    | .062       | -.162       | 5.065    | .0001        |
| Population         | 1.155E-5 | 2.255E-6   | .135        | 5.124    | .0001        |
| % Pop.Change ...   | .004     | .003       | .036        | 1.422    | .1535        |
| Crime Rate         | .004     | 2.362E-4   | .461        | 16.641   | .0001        |
| Per Capita Inco... | .005     | 3.724E-4   | .397        | 14.546   | .0001        |
| % 65 yrs @ ov...   | .318     | .129       | .064        | 2.476    | .0135        |
| Pop. Density       | .001     | 2.256E-4   | .121        | 4.129    | .0001        |

result is that wealthier communities also tend to be more stable in terms of population change.

When evaluating the importance of each variable a rough rule of thumb is that the  $\beta$  should be at least one and one-half times the standard error. Using that criteria for those variables achieving statistical significance, only the variable dealing with the percent of the population sixty-five years and older in the per capita expenditures equation is suspect.

Comparing the effects of each independent variable within the equations we find that the percent of owner occupied housing and population density are the two most important variables influencing percentage of the budget for the police. A one standard deviation change in either of these two variables would respectively result in the dependent variable changing .283 or .295 of a standard deviation. Similarly, for per capita expenditures the two most important variables are crime rate and per capita income with standardized coefficients of .461 and .397 respectively.

Moving from general to more specific observations, it was believed that there would be a significant inverse relationship between the percent of owner occupied housing and per capita police expenditures. Homeowners, being more sensitive than renters to property tax rates, would generally attempt to reduce the overall tax burden which would be reflected by per capita expenditures. The results did confirm this negative association with a  $\beta$  value of  $-.162$  and a

standard error of .062. In contrast the percentage of owner occupied housing showed a significant positive relationship with with the difference among cities in the percentage of the budget allocated the police with a standardized coefficient of .283 and a standard error of .02. Taken together these two results may indicate that the ownership of property increases the demand for public services to protect that property, but reduces the desire to pay higher levels of taxes for it.

City population was predicted to have a positive association with per capita expenditures, and was confirmed with a standardized coefficient of .135. This was predicated upon the belief that larger cities having, as a general rule, more resources available to them would spend more for governmental services. The increased expenditures consequently being reflected in those for the police. In contrast, it was also thought that the same variable would not be significantly related to the percentage of the budget allocated for police activities. Based on the works of Dye (1965; Dye and Garcia, 1978), it was conjectured that large cities tended to act as the provider of nonmandated services which were heavily used by suburban residents. One consequence of this might then be that although more funds are available overall, the funding of additional nonmandated programs would result in the percentage of the budget allocated to police remaining stable even though per capita expenditures might increase. The standardized regression

coefficient for this variable, significant although small at  $-.091$ , is negative and therefore is in accordance with this understanding.

As was predicted, the contribution of the population variable was significant at the  $.05$  level for both models, with a standardized regression coefficient of  $.111$  and  $.036$  respectively. The relative difference in importance of this variable between the two equations can be explained by referring back to the correlation matrix which showed an  $R^2$  of  $-.034$  between population and per capita income. Thus, if per capita expenditures are, as believed, strongly influenced by the individual wealth of the residents of a community, it is consistent that population would have a lesser influence than on the percentage of the budget model.

Much the same reasoning applies to the variable percent of population change between 1970-80, whose standardized coefficient was  $.111$  for the percent of the budget model and a nonsignificant  $.036$  for the per capita expenditures model. This would lend credence to the supposition that communities with more wealthy residents tend to be more stable than those with residents having lower incomes.

It was strongly believed that variations in the level of crime would be an important determinant for differences among city in police funding patterns. In both models crime did prove to be a statistically significant influence upon the measures of police funding. However, with a standardized regression coefficient of  $.461$ , its influence upon per capita

expenditures was approximately four times as great as its influence upon percentage of the budget allocated for police which had a coefficient of .12. Again this is strongly suggestive of a funding decision process wherein available funds beyond those needed for real or perceived mandatory needs are allocated to the police in a rational manner dependent upon the level of crime in the community.

Conversely, in a community wherein those funds are not available or where there are differing demands for services the the level of crime would not have as strong an influence. This would seem to explain why crime is relatively less powerful in explaining variations in the percentage of the budget allocated police. Coupled with the findings for the variable of per capita income which found standardized regression coefficients of .145 with percent of budget for police and .397 for per capita expenditures such an explanation becomes more compelling.

The standardized coefficients for percent of the population age sixty-five and older were  $-.092$  and  $.064$  for the two models respectively. Although the contribution of this variable is relatively small, of interest is the direction of the relationship in the percent of the budget allocated police model. It was expected that seniors, because of their increased real and perceived vulnerability to crime, would support higher funding for the police. Although this unexpected result cannot be readily explained with the information available, a possible conjecture is that even

though seniors may fear crime more than other population groups that also have more specialized demands such as health care services. It may then be that given limited financial means and a desire to keep taxes low they are opting for those alternative services at the expense of others such as the police.

#### Analysis by Population Range

Having examined the influence of the selected variables upon police budgetary policy within the aggregated population, attention may now be turned to any differences for those variables when the cities are subdivided into groups according to population size. Using the same four population categories as previously, the results of the regression equations are displayed in Table 4.6 below.

In terms of differences in results for each population range, those for percent of the budget allocated to the police do not appear to vary appreciably. However, when considering the results for per capita expenditures a possible pattern is noticeable. The results indicate, with the exception of the population category 50,000 to 99,999, a gradual increase in the amount of variance accounted for. Within this are also some interesting changes in the standardized regression coefficients for the individual independent variables of percentage of owner occupied housing, crime rate, and per capita income.

Beginning with the percentage of owner occupied housing a gradual increase is observed in its regression coefficient for the first three categories to  $-.14$ ,  $-.173$ , and  $-.2$  respectively. However, for those cities with the greatest population the coefficient for this variable is  $.105$ . Attempting to account for this leads to speculation regarding the conflicting balance between a homeowner's desire to keep property taxes low and his concern with crime. In smaller cities then it may be that the desire to keep property taxes at a minimum is predominate. However, in the nation's largest cities, which usually have the highest actual crime rates and in which the perceptions of danger from crime are exacerbated by loss of a sense of community and social isolation, then the desire for police protection may override resistance to higher taxes. If such were the case then the pattern to be expected would be a gradually decreasing importance in the coefficient of the percentage of owner occupied housing variable as population rises, as contrasted to the observed result of a gradual rise for the first three population categories and then a sharp decrease for the largest cities. However, because the influence of crime is as much dependent upon peoples' perceptions of its threat as upon its actual level it is impossible to test this reasoning with the data available.



Table 4.6

R2 for Regression Models by City Population Range

|                 | 25000<br>to<br>49999 | 50000<br>to<br>99999 | 100000<br>to<br>249999 | 250000<br>+ | Total<br>Population |
|-----------------|----------------------|----------------------|------------------------|-------------|---------------------|
| % Budget        | .166                 | .156                 | .132                   | .173        | .148                |
| Per Capita Exp. | .377                 | .361                 | .397                   | .438        | .422                |

When examining the influence of the crime variable, a pattern of steadily decreasing importance as population increases is found, with the standardized regression coefficients for the four population categories being .474, .403, .352, and .312. Earlier it was suggested that an increasing level of crime in a community acted upon per capita expenditures for the police only when sufficient monies were available to fund all real or perceived mandatory activities at at least an arbitrary base level. It is also known from the correlation matrix that those communities with the highest per capita incomes, and therefore the ability to fund municipal activities beyond minimal levels, tend to be smaller in population. Taken together these results seem to coincide with the observed pattern of the decreasing importance of crime in explaining variations among cities in their police allocational patterns as population increases.

The independent variable of per capita income also exhibits a pattern of decreasing importance as population increases, with standardized regression coefficients of .450, .418, .392, and .245 respectively. This may be interpreted in several ways. First, as has been stated previously it appears as though the average per capita income decreases as city size increases. Therefore one also would expect to observe a pattern of decreasing importance regarding its contribution to differences among cities when considering increasing population categories. It has also been stated previously that those larger central cities have been theorized as providing additional nonmandatory functions such as parks, hospitals, etc., which are then used by the suburban residents. To pay for these functions then reduces the amount of funds available for the police, after base requirements have been met. Consequently, even in relatively affluent larger cities, the per capita income of residents becomes less important to the police because any increased monies available to the municipality is at least partially used to fund other activities.

This section has then examined the ability of the two regression models to explain variations among cities in their support for the police. detailed the contributions of each of the individual variables included in the models, and suggested possible explanations which might account for the observed results.

### Stepwise Regression Analysis

The linear squares regression model used above provided certain information concerning the relationship between the dependent variables and each of the independent variables while holding the influence of the other independent variables constant. In contrast, stepwise regression, although its ultimate results will be the same as the linear regression model, is capable of providing additional information concerning the order of relative importance of the contribution for each of the independent variables in regards to the dependent variable. "In stepwise regression, the researcher specifies only the dependent variable and a list of possible explanatory variables rather than the exact model to be estimated. The program doing the regression then successively selects variables for inclusion in the equation on the basis of which one will yield the greatest increase in  $R^2$  (Hanushek and Jackson, 1977)."

The results of this analysis, allowing each of the variables to enter into the equation freely with the exception of population which was forced into the equation to control for its influence are as follows; for the equation having the dependent variable of per capita police expenditures the order of the independent variables and the variance explained at each step was population (.058), crime rate (.253), per capita income (.371), percent of owner occupied housing (.409), population density (.421), and

percent of the population 65 years of age and older (.425); for the equation having the percentage of the budget allocated for police expenditures as the dependent variable, the results were population (.002), per capita income (.47), population density (.072), percent of owner occupied housing (.119), percent of population change 1970-80 (.131), crime rate (.140), and percent of population 65 years of age and older (.142). (The complete set of statistics for this procedure are provided for the reader in Appendix B.)

These results tend to lend support to several of the conjectures which have been made previously. First, it is noted that in the equation dealing with the per capita expenditures for police the independent of variables of crime rate and per capita income explain the majority of the variance in the dependent variable. This is consistent with the idea that increasing levels of crime influence per capita expenditures for the police only insofar as there are monies available to fund increasing levels of police activities.

The results of the equation examining the percentage of the budget allocated for the police also provide some support for this. Here, the most important dependent variable is that of per capita income. Thus it would seem to be prudent to at least speculate that higher levels of police funding are dependent upon the ability to pay. And, if the results of the two equations are taken together it would also seem that those able to pay for what is assumed to be a relatively higher level of police protection will do so even though the

level of crime may not be any greater than in a similar community, but one with less fiscal capacity. This would be consistent with the comparatively smaller contribution of the crime rate in the latter equation.

The second independent variable freely entering into the equation was that of population density. This result was somewhat surprising in light of several findings in the literature. High level of population density are most closely associated with older, more developed, central cities. Several articles discussed in the review of the literature had suggested that central cities provide more discretionary services, such as libraries and parks, than the surrounding suburbs, whose residents tended to make free use of them. If such was the case it would be expected that this variable should be negatively correlated with the percentage of the budget allocated for the police because the funding of ancillary services would necessarily reduce the overall percentage allocated the police.

Odoni (1977), has noted that the growth patterns of police funding during the 1950s and 1960s increased faster than inflation in some cities while growing only about the same as inflation in others. In particular it is known that many large urban cities had severe financial difficulties during this time, in part brought on by large salary increases negotiated by police unions, and were forced to severely curtail or eliminate some services. This then may

explain part of the positive association between percent of the budget allocated the police and population density.

Having addressed the various issues related to the statistical analysis, the following section shall take these findings and observations and attempt to briefly summarize them in a more practical context.

### Summary

The findings conveyed in the preceding sections of this chapter have been structured in terms of the various research hypotheses and stated primarily in statistical terms. However, since the focus of this study is on a phenomena which also has practical relevance, some attention must now be given over to looking at the findings and their implications in a more applied context. However, in doing so extreme care must be exercised in that many of the findings are more suggestive than definitive, providing more directions for further research than answers for practical applications.

When examining the results of each of the two models it is apparent that given those independent variables selected, the model for per capita expenditures is more powerful in its explanatory power than the model focussing upon the percentage of the budget allocated police, with  $R^2$ s of .422 and .148 respectively. This is consistent with a number of other previous research findings. Of particular relevance are

those of Odoni (1977) who, after looking at expenditure trends for the period 1959-73, noted that police expenditures more than tripled during that period, far outstripping the rate of growth in many other economic indicators of well-being. However, Odoni (1977: 143) also concluded that:

...the growth pattern of total police expenditures for the cities under consideration was remarkably similar to that of police expenditures alone. While police expenditures generally grew faster than expenditures for fire departments, sanitation, and highways, they lagged behind the rate of growth of expenditures for education, public welfare, and debt service. As a result, the proportion of city budgets allocated for police expenditures increased in some cities and decreased in others, with the overall average remaining relatively constant.

Although these conclusions were only concerned with changes in police budgets and do not directly address factors accounting for either changes or differences in police budgets among cities, they do tend to support at least one of the suppositions that has been made here. These findings point to a relationship between police funding and funding for other municipal activities. It has been suggested that such a relationship takes a form wherein expenditures for the police are increased to a certain level then, as additional funds become available, discretionary decisions are made which result in those additional funds being applied to other functional areas. This type of a process would be consistent with the results of this study wherein the model dealing with police expenditures as a percentage of the budget accounted for only about 14 percent of the variance among cities.

On the other hand, the model dealing with per capita expenditures was capable of accounting for approximately 43 percent of the variance among cities. Within this model the two most important independent variables were per capita income and crime rate. It is plausible to consider per capita income as one indirect measure of funds available to the municipality. Thus, as per capita income rises, so too does revenue derived from taxation. With increased funds the number of funding options open to elected officials also increases. Decisions may be made not only to fund mandated activities at higher levels, but also to initiate new nonmandated activities or services.

It has also been previously stated that if budgeting is considered to be a rational process, insofar as there is a means-ends relationship, then there should be a degree of positive association between the level of crime in a community and the amount of funds that community expends for police protection in an attempt to control crime. It is equally apparent that this association cannot be a perfect one in that it is constrained by the amount of monies available and the taste of the community for police protection as opposed to other services which might be purchased with the same funds. This line of reasoning is supported by the per capita expenditures model to which the per capita income and crime rate variables were such important contributors.



There are several implications to be derived from all this for the police administrator. First is obvious recognition that he, as an advocate for his department, is in competition with other programs for scarce resources. It is apparent that when there is a conjunction between a high level of crime and available funds the administrator would do well to argue for his department on the basis of its increased need to combat that crime. Again this is a tactic chiefs have long used and is not without certain risks. This argument basically stresses the ability of law enforcement to actually control crime which is a risky proposition at best. A more reasonable approach might be one which notes the increasing level of crime, the possible reasons for the increase, and then details specific measures which predicated upon the requested increases in funding, would be undertaken to address those factors.

Alternatively, the police administrator may well find himself in a situation where funds are available but it appears as though they will be used to fund some other activity. Typically chiefs, as well as most other heads of municipal departments, have only been concerned with the allocations received by their own division, and if at all concerned with other department's allocations only in a competitive manner. One unique feature of the police is, as suggested above, is that crime as the environmental feature in large part responsible for the existence of the policing function may be addressed in a number of different ways other

than through law enforcement. This raises the possibility of a police administrator who is in a situation where it is unlikely that his department will receive any increases other than incremental adjustment beginning to explore alternative means of funding.

As an example, the possibility exists for the police administrator to indirectly advance his department's interest through the use of a cooperative coalitional approach. If, after identification of alternative crime reduction techniques, any of them are associated with programs likely to receive funding increases the chief has two choices. First, he may strike a bargain with that department's head within which he will act as an advocate for that program in consideration of future support. Secondly, he might try to develop an activity consistent with both his and that department's basic goals, which could be funded through that department. An example of this might be working with the park's and recreation department to contract for additional police patrol.

Although these are rather broad directions for the administrator, they are perhaps the best that can be sustained at this time given the limited scope and result of this study. However, when taken together with the results obtained, a clear need and promising directions for future research have been established. The following chapter will consider what directions this research might take and provide

several specific recommendations for development of a research plan based on the information gathered here.

## CHAPTER V

### Introduction

This study has explored the simple relationships among selected socioeconomic variables and two measures of budgetary outcomes for the police. Based on those findings, it also examined the utility of a linear model, also composed of socioeconomic variables, in accounting for the variation among cities in the two different measures of police allocations. Data from all cities in the United States with a 1980 census population of 25,000 and greater was employed primarily because the required data for cities of smaller population was found to be relatively incomplete in a substantial number of instances.

The review of the literature indicated both a divergence of opinions and of the corresponding research findings concerning the most important types of variables believed to influence general public allocational patterns. In broad terms this debate was summarized as being between those who were proponents of the dominance of socioeconomic determinants and those who believed that variables associated with the political process are most important. Based on a review of previous studies, most particularly the works of Hofferbert (1974) and Mazmanian and Sabatier (1980), a model of the budgeting process was selected which was predicated upon two basic constructs; time ordering and narrowing. Thus, according to the theory underlying the model, factors which

set into motion and influence the budgeting process may first be ordered into categories or stages according to their temporal occurrence. And, the closer in time to the decision itself any one of these stages occurs the narrower becomes the relative range of variables or actors which may influence that decision.

As is true of most conceptualizations of a complex social behavior, this particular model has both its strengths and weaknesses which, in turn, are reflected in the instant study. Therefore, one of the objectives of this chapter is to point out and to place these weaknesses into the proper perspective, and also to discuss how the strengths of the model lend themselves to future research studies. Toward these ends, attention will first be given over to what appear to be the primary weakness of the study.

In the initial reification of the decision making process there was a need to make several simplifying assumptions. The foremost of these was that in order to examine the effects of those variables occurring in the earlier stages of the process it was necessary to discount or assume the constant influence of those variables occurring at subsequent stages. The advantages realized in doing so were threefold. First, this reduced what was known to be a nearly unmanageable number of variables to a lesser number more in keeping with the scope and resources of the study. Secondly, it eliminated the need to conceptually specify the interactions between intervening variables and those selected

by the study. Finally, because the model postulated that while both socioeconomic and political variables were determinants of budgetary outcomes, the socioeconomic variables were understood as occurring at an earlier stage. These various characteristics of the populace thus both determine the form of the political system and, the demands arising from the populace are filtered through the political system to emerge in the form of political decisions. The two different classes of variables, political and socioeconomic, were therefore viewed as being interrelated rather than as being mutually exclusive causal factors as implied in some of the literature. For that reason it seemed more appropriate for dealing with socioeconomic variables because of temporal precedence in the causal decision chain, it was consequently not necessary to directly address at that time which of the two types might be most important.

It is apparent that by employing a model composed of a series of temporal stages or steps and then limiting consideration to only one, the results will be less than satisfactory. Yet, at least as an initial step, it is not clear how the process might have been addressed in a better way. Therefore, one weakness of the model as presented is that of its failure to account for the influences of those variables subsequent to the stage selected for analysis. Still, even given this, the results obtained are encouraging and may now be reexamined with an eye toward beginning to address the influences of other subsequent stages.

The results of the regression models indicate that the model dealing with variations in per capita expenditures between cities was substantially more powerful in accounting for differences among cities than was the model addressing variations in the percentage of the budget allocated for the police. Upon further reflection this would appear to be consistent with currently accepted theories of the budget process as outlined in Chapters Two and Three. Crecine (1967), based on his direct observation and analysis of budgeting in several large cities, concluded that the allocational process was largely incremental in nature, with decisions as to the increased level of support given to any activity being dependent upon the amount of additional revenue available. In this sense then he has conceived of the budgetary decision making process as being, at least to a significant degree, mechanistic in its determinations with decisions strongly influenced by revenue availability rather than any comprehensive evaluation of needs, supports, or demands originating in the external environment.

This may be understood as indicating, at least insofar as the cities he studied are representative of other cities, that program funding decisions are not made upon the basis of a process which first determines goals, the activities need to realize satisfaction of those goals, and then the funding necessary to carry out those activities. Rather, funding appeared to be made by using a decision making aid in which each program is increased by an increment of its existing

base. And, that increment is determined by the amount of revenue available beyond that needed to satisfy the base.

This is certainly an appealing explanation given the inherent ability of such a process to reduce the complexity of the decision making process for elected officials, but also in its minimization of political risk to which they might possibly be exposed if funds were allocated differentially. And, such minimization of risk is especially important when dealing with such a sensitive political issue as the police where any attempts to decrease their allocation would leave the politician open to charges of being "soft on crime," an issue which worked to great advantage in the presidential campaign of 1988. This also highlights the importance of mechanisms minimizing political risks in underfunding decisions.

One strategy for doing so has already been discussed, that of moving the basis for decision making from an emotional, value based set of criteria to more rational, empirically based set of criteria. Another is through the use of political coalition building whereby the majority of decision makers buy into the a determination to underfund the program in question, thereby spreading out the political risk. A third alternative has been demonstrated by recent congressional actions to close a number of military bases. Here, rather than the Congress debating the merits of each individual base, a commission was formed to select the bases to be closed. The commission then presented its finding as an



aggregate with only one vote being taken on closing all the recommended bases rather than on each base individually. Such an action had the benefit of spreading the political accountability as well as allowing the politicians to represent their positions as ones which were consistent with higher goals such as saving tax dollars and increasing efficiency.

However, returning to the use of decision aids, in such an atmosphere it would be expected that the model having per capita expenditures as its dependent variable would be more sensitive to variations among cities because that variable is, in effect, a measure of available revenues. So too does this apply to the independent variable of per capita income which was found to be significantly intercorrelated with per capita expenditures and consequently explained a significant amount of variance in that regression model.

The second variable found to have a strong degree of influence within the per capita expenditures model was the measure for the total crime rate, the UCR Index of Part I crimes. If one were to rigidly adhere to Crecine's explanation of budgetary decision making the findings for this variable, which is a measure of environmental influences, would have been predicted to have little significance. The explanation as to how the crime rate then influences per capita expenditures infers a conditional ordering with the per capita income variable. In this case per capita income, as a criterion for available funds, acts

as an intervening variable selectively moderating the environmental influences of the crime rate. The various forms which this influence might possibly take are as follows.

In a situation where crime is not rapidly increasing but revenue are marginally expanding the police will receive whatever general standard increment is allocated. In a case where both crime and revenues are marginally expanding the same pattern will apply given the assumption that marginally increasing crime will not generate sufficient public pressure to force the decision makers from their incremental pattern of decision making. However, in a case where crime is increasing beyond some level sufficient to be attended to by budgetary decision makers, and revenues are also increasing beyond that needed to provide a standard increment to most or all programs, then the police will receive some level of monies above and beyond that increment.

However, the two possibilities which seem to be most directly applicable to current situations are those where crime is increasing rapidly but revenues are decreasing slightly or moderately, or where crime is slightly decreasing and revenues are increasing slightly. In these cases actual responses have been mixed. In several cities, New York and Detroit for example, the financial situation in the 1970s deteriorated to such an extent that large numbers of officers were cut even in the face of rising crime. In other cities few or no cuts were made but neither were allocations increased beyond whatever standard increment existed.

Although it is difficult to make sweeping generalizations, what appears to strongly influence the funding process is the perceptions of the populace concerning the seriousness of the increase in criminality.

This issue of perceptions calls into question the validity of the Uniform Crime Reports Part I Index and its influence on expenditure levels. It is known that the Part I Index is inaccurate as a measure of actual crime in that many crimes are never reported to the police and are therefore not included in the Index. Secondly, the Index speaks only to the presence of some level of crime and not to how it is understood by the public.

The former problem is less serious in that while the UCRs may not be accurate insofar as the total level of crime, there is reason to believe that they are generally accurate in indicating increases or decreases in the level of criminality. However, as regards the former issue of perceptions of criminality it is likely that they are a relatively imperfect indicator of that phenomenon. For that reason this issue will be more closely addressed at a later point.

Unfortunately, because longitudinal data was not employed here, these speculations cannot be directly substantiated by this study. However, they are consistent with Crecine's findings which note that if extra funds were available after providing for the base and incremental increases, they were used to grant portions of department's

supplemental requests. The possibility of this pattern of behavior certainly suggests avenues for future research and study.

The third variable, other than population, significantly contributing to variations in per capita expenditures was that of the percentage of owner occupied housing within a community, which was found to have a negative relationship. This variable may be conceptualized in several different ways. First, it is likely that per capita income is an indirect measure of the level of wealth in any given community because general home ownership is also associated with higher levels of income (in this case higher levels of income is used in a relative sense, such as in comparison to the bottom quadrille of incomes). Secondly, it may also be thought of as an indirect contributor to an increased taste for police services because home owners then have more to protect than those who do not own homes, and therefore the demand for protection may be greater by home owners. If one or both of these possible interpretations is true, then the expected relationship to per capita police expenditures would be one of a positive association. Yet the actual results showing a significant negative relationship indicate a different conceptual relationship between the two variables. It was advanced that this result could be related to consumer feelings regarding the primary source of municipal revenues, the property tax.

It was hypothesized that those who own their own homes are very sensitive to the level of property taxes and, more directly than those who rent their homes, recognize that it is in their self interest to keep taxes as low as possible. This desire is reflected in the negative association between the percentage of home ownership and per capita expenditures for the police. However, the results found in the correlation matrix presented in Chapter IV between all dependent and independent variables indicate that the relationship is not quite so simple and direct.

In addition to the significant negative correlation (.05 level) between percent of owner occupied housing and per capita expenditures for police, there is also a significant negative relationship between the crime rate and the percent of owner occupied housing. This presents the alternative explanation that because those communities which have a high level of home ownership also appear to have lower crime rates, it is the lower level of crime which which contributes to the lower per capita funding of the police rather than the desire of home owners to keep taxes low.

However, if this were the case then there should be no positive association between home ownership and percentage of the budget allocated for the police. Here then the correlation matrix does show a significant relationship (at the .05 level) between percentage of home ownership and percent of the budget allocated for the police. This would seem to lend support for the assertion that while home owners

are desirous of keeping property taxes low, they also desire a relatively greater level of police protection to protect those investments. This is not to say that the crime rate does not enter into these decisions, but rather that such determinations do exist independent of the actual crime rate. Indeed, the results of the regression equations, within which the influence of each independent variable were held constant, found a significant negative relationship between home ownership and per capita expenditures for the police and a positive relationship to percent of the budget allocated for the police.

Although not tested for in this study, it is believed that such a negative relationship would extend not just to the police but would also result in a negative linkage between percentage of home ownership and level of property taxes in total.

In contrast to the per capita expenditures model, the model taking as its dependent variable the percentage of the budget allocated for police activities was much less powerful in explaining variations among cities by a ratio of almost three to one. Given that the only difference between the two models was the independent variable it is fairly apparent that they are indeed measuring different aspects of budgetary outcomes. This is further supported by the correlation coefficient between the two independent variables which found an association of only .217.

An explanation for this difference which would seem to be consistent with the variables selected for inclusion within the models, although it was not empirically tested, is that per capita expenditures may be thought of as representing more nearly a crude measure of how much residents are desirous of spending for municipal services at an aggregate level. In contrast, the percentage of the budget allocated for any given function is probably a more accurate indicator of differences in decisions based upon the taste people have for a particular service as compared to other services that are or might be purchased with their tax dollars. As has already been pointed out, two out of the three independent variables which were included within both models and found to have a significant influence on the dependent variables could also be conceptualized as criteria for the level of wealth available for taxation. Thus, there is some support for the argument that those who have more, tend to pay more for government. Whether this is purely a function of available monies or whether it is, as suggested by Banfield and Wilson (1964), that the middle class has a certain level of concern for the good of the community as a whole rather than for just their own particularized interests cannot be determined.

Taken as a whole, the results of this study provide several valuable insights into the budgetary decision making process in general, and for the police function in particular. It has provided evidence that the conceptual

model employed is a useful tool for examining that process, it has identified several socioeconomic variables which seem to influence police allocational patterns (for the dependent variable of per capita police expenditures these were percent of owner occupied housing, population, crime rate, per capita income, and population density, while for the dependent variable of percentage of the budget allocated for the police they were all of those just listed and the additional variables of percent of the population 65 and older and percentage of population change 1970-80) and has provided support for the theoretical linkages between the two, and, it has demonstrated the utility of the two dependent variables selected. Furthermore, it has raised a number of questions which might be addressed by future research. With these results in hand it is now possible to suggest in the most general of terms the outlines of a more comprehensive study which would attempt to address many of the issues which have been raised here.

#### Issues for Future Research

Before proceeding to any discussion of the variables which should be included in any future determinants study of police funding allocations, some little attention should be given to several broader issues identified through the experience gained in the conduct of this effort. Because these issues are relatively philosophical and broad in nature



it is not the intent to fully detail and answer all issues raised by them at this time. However, their importance to future research in this area is such that at least some little consideration must be given over to their implications. As a final note it should also be pointed out that they are not presented here in any order of importance and none should necessarily be inferred.

First, one of the most fundamental questions which may be asked concerns the appropriateness of the conceptual model employed here and its applicability to future and more inclusive studies. Although this cannot be answered with a great degree of certitude, in comparing this model to others which were identified within the literature it would seem that in at least general terms it is capable of accounting for the majority of those classes of variables which could be reasonably assumed to be related to the preponderance of budgetary policy decisions. This is an important point because, as was suggested in this research, there is some little evidence to indicate that funding decisions for the police are, in some degree, potentially interrelated to funding decisions concerning other municipal activities.

Earlier in this chapter a number of alternatives were postulated as to the effects on police allocations given various situations in which combinations of crime and available monies were either increasing or decreasing. It is likely that such situations, particularly those in which monies are relatively static or decreasing, would force

elected officials out of their observed patterns of incremental decision making. In such instances budgetary practices might well be introduced which take into greater account the relationships between different activities. For example, during the Carter administration when revenues were not expanding at a rapid enough rate to keep pace with inflation the administration attempted to adopt a zero based budgeting plan. Among other things this method of budgeting forces decision makers to begin to examine relationships between program areas. And, as will be examined at a subsequent point, it suggests the importance of longitudinal studies.

If such is the case, it logically follows that this web of relationships extends beyond just the police. For that reason any future research should certainly have as one of its initial focal points an examination of linkages between intercity program funding levels. This broadening of the scope of activities which the model is asked to account for then returns us to questions as to its wider applicability in conceptualizing and explaining those phenomenon.

Although the model employed here is designed to apply to any substantive area of policy, it seems reasonable to assume that the specific components of the model and the paths followed in the formulation of policy would vary considerably from one type policy to another. The distribution of relative impact between sectors of the model is likely to vary between

policies. We would also expect the stability and complexity of substructures to be different for different policies.

Available research in the area seems to substantiate this point. For example, Dye's (1966) analysis of the combined influence of industrialization, income, urbanization, and education indicated a substantial amount of variation between policy areas.

Putting this all together then points to a situation wherein policy areas may be interrelated as to funding decisions, but the forces which determine what those decisions will be may vary widely. Although the model seems robust enough to include what might be suspected to be a substantial proportion of those variables within its framework, the wisdom and utility of doing so may be problematic. Within just this study, with only the initial few variables inserted into the regression equation several severe instances of multicollinearity were found. It is almost assured that as the number of policies examined increased, so too would the number of variables believed to be important determinants of those studies. The results then being one in which it would be extraordinarily difficult to unravel the tangled thread of the multiple relationships.

This then speaks to the necessity of limiting the number of policies examined by any one study. Guidance as to a possible criteria upon which these limiting decisions might be made has been tentatively suggested by this study. It was noted that there appeared the possibility that as monies

reached a certain level decisions were made regarding whether to fund additional increments of police activities or to increase the level of support for service areas not mandated by law or strong public opinion. Two examples of such areas often financed by municipalities are parks and recreation and hospitals or health care. Both of these functions, while highly desirable, are discretionary in nature or at least certainly not mandated to any degree, and are funded by a large enough proportion of cities to constitute a meaningful sample.

A third discretionary area which is fundamentally different than the preceding two, but which may still influence other funding decisions in a like indirect manner is that of school or education financing. School financing is one that is different in nature than other activities considered here because its appropriations are not under the control of city officials. However, it would certainly seem to be an area worthy of closer examination given the criteria being considered. First, school financing is very discretionary in nature. This is not to say that the actual decision to fund or not to fund schools is discretionary which it clearly is not, but the level at which they are to be financed is without question the subject of a great deal of political debate. Secondly, although schools are not funded directly by city government their revenue sources, the property tax, is fundamentally the same as that for other municipal activities. Therefore, in a very real sense, the

school districts within a city are also in direct competition with municipal programs for what is known to be a limited pool of monies. Since the schools contribute to the total tax burden as understood by the tax payer it is likely that this influences their deliberations.

These three sources are then suggested as deserving closer scrutiny concerning their potential influence on police allocations and the differences in those patterns among cities. This is not to say the described areas are all inclusive of those that might be examined. Indeed, it is likely that as inquiry proceeds other perhaps more relevant areas may emerge. However, these are suggested, in the interests of parsimony, as being nominal policy categories in which the potential is believed to be fairly high that there may exist significant interrelationships.

Another theoretical area which has only rarely been addressed within the literature is that of the changes in the importance of policy determinants over time. This is also a complex area since there are several different but interwoven concerns inherent within it. One of these concerns arises from the incrementalist theory of budgeting. Acceptance of incrementalism naturally tends to focus study on changes at the margins, and generally these are changes within any one fiscal or calendar year (Bailey and O'Connor, 1975). This short term, limited, perspective may contribute to a tendency to overlook those policy shifts which can occur within an extended period of time due to a continuing trend of positive

or negative yearly adjustments. Over a span of time these changes may amount to a relatively substantial policy shift but yet remain unnoticed when only the yearly increments are examined in isolation.

Of all the determinants studies identified, only one employed a longitudinal research design dealing with differences in changes rather than absolute differences in a given year. This study by Bahl and Saunders (1965) was concerned with the portion of variation in changes in governmental expenditures which could be explained by changes in the levels of the dependent variables. Based on their results, the authors concluded that the findings of other studies using a cross-sectional research design were questionable, most particular in the level of variation they claimed to be able to account for.

These findings would certainly be consistent with an intuitive understanding of the dynamics of the budgeting process as conceptualized here. If one accepts the proposition that budgeting decisions are reflective of or responsive to conditions in the larger external environment, then so too must it follow that a focus upon the degree of change in those variables believed to exert that pressure upon the process is appropriate. It is equally true that much the same reasoning may be applied by those upholding the ascendancy of the political process as a determining factor in allocations because there is no less reason to believe that variables indicative of the political process are

immutable over any period of time. Thus, a strong argument can certainly be made that in future determinants research the unit of analysis might well be changes in the levels of selected variables rather than the absolute levels of those variables. An approach extended over a sufficient span of time would be particularly valuable in uncovering the presence of any ebb and flow in the influence of the specified variables.

This is also consistent Tucker's (1981) comparison of longitudinal and cross-sectional analyses, who notes that one major difference between the two is that the former directs attention toward long term success while the latter is more nearly concerned with short term success. Likewise, others have also noted the practical difficulties in considering only an annual budget period, and have commented that, "The principles of annual choice are denied in the reality of the complex flow of funds which overlap from year to year" (Caiden, 1982: 518).

While this changing influence is applicable to a number of different types of policy areas, it would seem to be especially well suited to that of the police, given the changing nature of crime and the way it appears to intrude upon the public consciousness. Although no studies were found which directly look at this issue it may be argued that since crime is an ever present urban phenomenon it bubbles to the surface of the public's attention only when it reaches some unacceptable level or when some particular criminal event or

trend brings to the public's attention. At that point increased funds are allocated for one or more years until some other issue replaces that of crime. In support of this, it may be noted that the issue of increasing crime during the 1960s resulted in monies being allocated to the police, and, during the late 1980s, the single issue of drugs seems to be a stimulant to increased funding in some cities such as Washington, D.C.

Although this discussion dwells on the advantages to be gained from longitudinal studies of budgetary behavior, such studies also present several methodological problems. First of these is the determination of what constitutes an appropriate period of time. While there is no definitive answer for this question it is known that a lag period exists between the rise of an environmental disturbance and a change in budget levels to address that disturbance. Thus, the inside limit on a longitudinal study should be a minimum of four to five years to capture this effect.

The outside limits are conditioned by several factors. If the research design is a longitudinal panel study, then the longer the scope of the study the more difficult it is to find cities whose records cover the information needed for the necessary period. However, examination of Census Department Surveys of Government Finances indicate that this should not be a large problem. Another major source of concern is the stability of budget category definitions over time. That is to say does the definition of budget category X



remain the same over the period of the study. To answer such a question would probably require that the researcher do several case studies of representative cities.

The above discussion has briefly touched upon another area which was addressed in earlier chapters, but needs some further amplification at this time. This is the general debate as to the efficacy of socioeconomic versus political variables in accounting for differences in budgeting outcomes. The discussion surrounding the selection and development of the conceptual model used in this study seem to suggest that this may be a pointless debate and that adherents of both perspectives have some claim to legitimacy, with the effects of socioeconomic conditions being filtered through the political process. In broader terms it would also seem to be an untenable argument that once a community reaches a certain stage of socioeconomic or political development specific policy outcomes will automatically emerge. The difficulty then lies in the selection and theoretical specification of the variables and how they are conceptually linked together. In terms of specification it would also appear that the greatest difficulty may well be in the identification of the relevant factors within the political process. While socioeconomic variables are fairly concrete in nature, relatively easy to specify, and widely available to the researcher from a number of sources, political variables are much more intangible, more difficult to specify, and tend not to be available as secondary data.

Thus, there is a natural tendency to attribute to the political process everything than cannot be explained by socioeconomic factors.

The initial review of the literature identified a number of the more pressing theoretical and practical concerns which future determinants studies must deal with if they are to make any claim to comprehensiveness. The intent of this section then has been only to raise these issues and has not in any way attempted to resolve them in any sort of systematic fashion. The following pages are then given over to sketching out in more specific terms several of the important socioeconomic, political and elite group variables which ought to be given consideration in subsequent determinants studies.

#### Future Research Studies

After review of the existing research literature one is struck by the number of studies which have been undertaken but, when examined as a body of works, the parochial nature of their results. While there has been a great deal of work done, nowhere has there approached anything resembling a grand or overarching theory of budgetary determinants. What is referred to here is not one theory which is capable for accounting for all the differences among cities for each of the programs they undertake. Rather it refers to a theory which is capable of identifying and ordering the different

classes of variables believed to influence the process. This failing is further reflected in the paucity of findings which provide any practical or applied guidance to those in the field who are responsible for budgeting. With a great deal of the preliminary work in hand, it would seem that such an endeavor is within practical reach. As a beginning several additional socioeconomic variables will be first suggested and discussed and will then be followed by a number of political and elite group variables. These are presented in Figure 5.1, which conforms to the same sequence as Hofferbert's model.

Because the relationship between crime and police funding has such a high degree of face validity, and because the present study did find that under certain conditions it did exert a significant level of influence upon measures of police allocations, this phenomena is deserving of some further comment.

As was noted early on in this study that crime and the level of crime are somewhat difficult variables to deal with because, while on the one hand they represent a concrete set of phenomenon, on the other hand they also engender a differential set of responses within the community. The found influence of crime upon per capita police expenditures is intriguing because it hints of an actual but complex linkage. For this reason it is believed that the subject should be given a more in-depth treatment

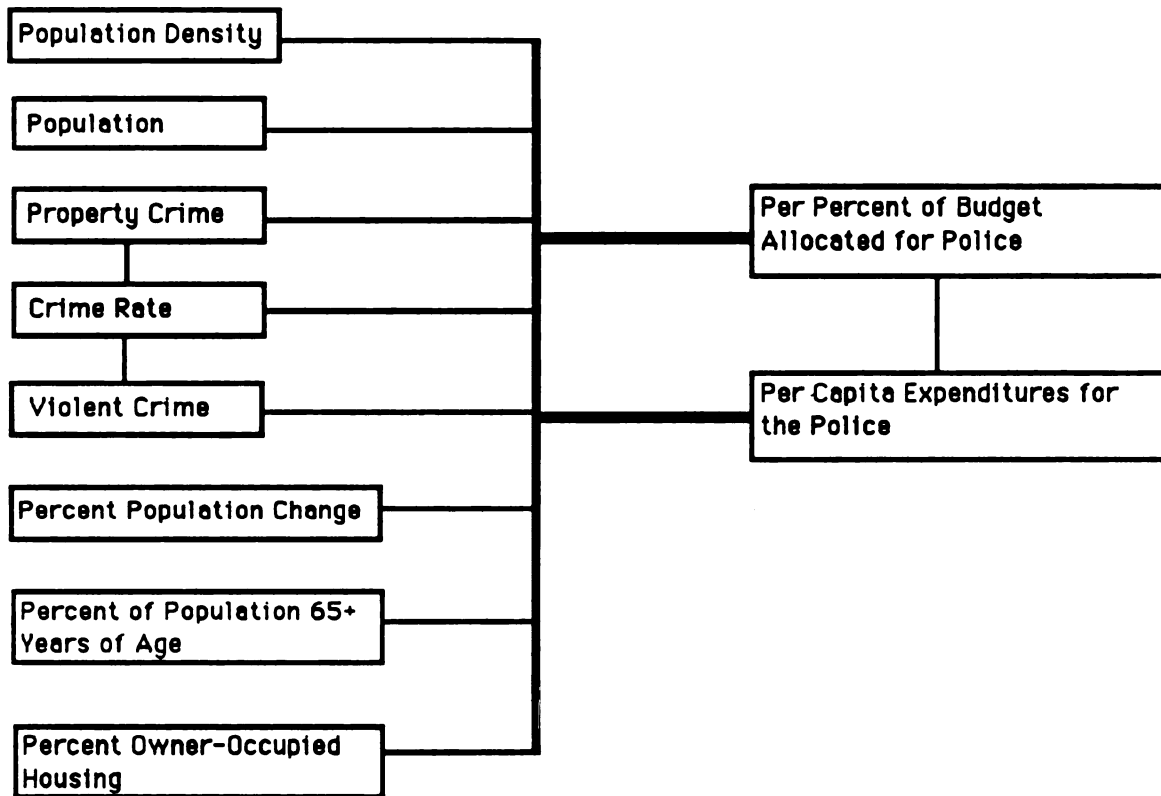


Figure 5.1: Variables Suggested for Future Studies

In and of itself crime has no relationship to social policy. It is only as it is perceived by members of the populace that it begins to take on meaning and to generate demands and supports which may eventually be translated into policy. Thus it is only as a stimulus that crime may be a determinant of policy. Therefore any consideration of crime within this context must consider not only the phenomena itself but also the social perceptions of that phenomena because the two are inextricably linked.

Beginning with crime as an event in the external environment, it seems within the bounds of prudence to speculate that not all types are equal in the disturbances they create. For example, the theft of a bicycle does not have the same level of impact upon the collective awareness of a community as does the murder of a child. Therefore it may be at least argued that, in terms of their relevance to public policy, some types of crimes may be more important than others. Of those crimes which might possibly be examined, the crime of rape seems particularly well suited for closer scrutiny. Rape is viewed as being an especially oppressive crime in that it is not only a crime of violence but one which is sexual in nature and consequently impacts upon a number of widely held societal norms and values. In addition, recent years have seen the formation of a number of special interest groups which have attempted to raise the societal consciousness concerning the general understanding of the crime, its severity as regards its impact on victims,

and to change the response of the criminal justice system. Of equal importance is the fact that rape is a crime which is usually widely reported in the media and thus is likely to be brought to the forefront of public attention.

One drawback in using the crime of rape as a variable here is that it is known to be a widely underreported occurrence. However, it is also known that during the past decade the incidence in unreported rapes has decreased substantially. Secondly, it may also be argued that even though a certain proportion of rapes may go unreported, their effects on general public perceptions are limited in comparison to those which are reported and receive media attention. And, if there is an increase in rapes the number receiving that media attention should also increase proportionately.

By extension it would also seem to be arguable that the number of crimes is an important variable from several aspects. First, while it is suggested that one bicycle theft may not cross the threshold of public awareness at some point, be it one hundred or one thousand, a higher number of such thefts might. Secondly, it is also likely that at some level crimes are not understood as discrete events but rather as an aggregate of events attended to as one phenomena. In this sense the total level of existent criminality within the community is important. The crime of burglary is one that might be conjectured as falling into this category. Burglary is a relative common crime which, although certainly serious

to the victim, is generally tolerated among the community as a whole. Yet, at some point, if these burglaries rise beyond a particular level the community will begin to take notice and demand action.

The second aspect of crime lies in public perceptions of the phenomena. How the public perceives the level of crime, regardless of its actual level, would also seemed to be linked to the policies in question. A great deal of research has been done in this area, and has returned some rather consistent findings as to which socioeconomic variables are related to perceptions of crime. In this case we can move beyond generalized findings which merely show differences in the fear of crime, to more specific findings which are thought to be conceptually related to dispositions leading to actions actually addressing the issue.

The latter part of the 1960s saw a rise in a set of issues which were commonly clustered under the general phrase of "law and order." While many at first dismissed this as merely a catch phrase for disguised racism, later researchers (Block, 1970; Flanigan, 1972) have come to view it as a legitimate social issue in large part concerned with the rise in crime during that period. George Gallop, the national pollster, has contended that this was an underlying issue in voting patterns during the 1968 elections (Gallop, 1973). If this is so, then here is a complex of beliefs that has translated itself into overt political behavior, and ones

which might equally apply to policy concerning law enforcement at the local level.

Some who have done scholarly work in this area have contended that the striking fact is how similarly Americans feel about these issues regardless of age, region, sex, education, occupation, religion, politics, union, community size, or almost any other cross-index one might come up with (Scammon and Wattenberg, 1971). Other scholars have found more variance in law and order attitudes than first supposed (Cantril and Roll, 1971; Gamson and McEvoy, 1970). In their summary work examining these alternative findings, Bennett and Tuchfarber (1975) concluded that those most supportive of this general issue were also religious fundamentalists and strong conservatives. Although not detailed in that study, the former concept (religious fundamentalism) might be operationalized as the percentage of the population formally enrolled in the membership of fundamentalist and/or evangelical churches. As regards the latter, for their study a conservatism scale was constructed which was based on responses to questions concerning party identification, government guarantee of jobs, government aid to minorities, inflation, law and order, defense spending, busing, and industrial pollution. It is then hypothesized those cities which have a high proportion of residents who are members of fundamentalist churches and who score high on issues generally associated with conservative positions would also have higher expenditures for the police.



Another aspect relating to the level of fear of crime concerns the role of the local media in portraying the crime problem. Subjective impressions which contribute to the fear of crime in individuals are rooted in many source; direct victimization, victimization of friends or relatives, and information gleaned through the media are but several examples. In the latter instance there is some evidence indicating the the media contributes less than a realistic picture of the extent and nature of crime through its selective reporting. In particular the media provides disproportionate coverage of criminal events in which the elderly, women, and children are victims, and most especially when the crimes are particularly heinous in nature (Toseland, 1982; The Select Committee on Aging, 1977; Davis, 1952).

To the extent that the media plays a role in the formation of public perceptions regarding the nature and scope of the crime problem, and to the extent that these perceptions are translated into actions, it may also be a source in variation between cities in public spending for the police. Although very little work has been done in this area, it may be hypothesized that in those cities with broad media presence it is possible that citizens have a different sense of the magnitude and nature of crime than in those cities where coverage is less pervasive. These concepts might be operationalized through variables measuring the number of television stations and newspapers routinely available in a city, and it could then be hypothesized that as the number of

television and newspapers available to a cities' population increased so too would the public's fear of crime. And, as fear of crime increased, expenditures for the police would be expected to increase.

The findings of this study have suggested that the variable of per capita income was significantly related to measures of police allocations. It was found that as this variable increased, so too did the importance of the variable measuring the level of crime in the community. Per capita income was then perceived as a measure of community wealth available for taxation and therefore an indirect measure of city revenue. Based upon this finding it was advanced that crime became an important determinant of police funding only when there were sufficient funds to address all mandatory needs with an excess then remaining to allow for discretionary decisions and that this situation is more likely where the wealth of the community is higher. However, as was also pointed out, that an alternative explanation is those people who have more wealth have a greater need and ability to protect those goods.

This is an important conceptual difference deserving of a more complete treatment. Perhaps since those variables delineating the extent of municipal revenues are the easiest to gather they would form an appropriate starting place. At a minimum these would include monies received from property taxes, sales taxes, and grants from state and federal sources, stated in per capita terms. Although the latter

examples of grants from state and federal agencies are only rarely applicable to law enforcement activities they may still be important in that they represent a revenue source which is part of the total monies available and may result in different outcomes than if they were not available. For example, knowing that a grant earmarked for public housing is becoming available this area might not be given an increment of increase out of local monies and instead that effort shifted to some other program.

Having addressed a number of additional socioeconomic variables, it is now appropriate to give some consideration to the partial specification of those independent variables associated with the other two important components of Hofferbert's model; the political process and elite behavior. In the conceptualization of the flow of the decision making process, it is believed that these variables are of particular importance in that as changing conditions generate new demands and supports on the part of the electorate for particular outputs of government, the political process acts as a filtering mechanism between the two. As such it may encourage or discourage action on certain issues, focus attention on particular facets of public problems, and in many and subtle ways serve to modify or shape the public debate. Therefore, if the nature of these political variables are different from city to city, then so too will be the responses to the specified socioeconomic conditions, even

though these conditions may be the same between any given cities.

When turning to consideration of particular political linkages, several that readily come to mind relate to the structure of the governmental system. This structure has been hypothesized as playing a particularly important mediating role in the relationship between socioeconomic variables and policy outcomes. The theory underlying the socioeconomic determinants studies may be summarized as being that the values of socioeconomic variables are indicative or give rise to certain preferences, wants, demands or supports within the population. Yet for any of these cleavages to be realized as policy they must be translated by and through the political system. This point addresses the criticisms of Jacob and Lipsky (1968) who caution that many of the commonly used socioeconomic variables are not themselves inputs. Rather they should be viewed as conditions that may give rise to demands and supports between which and policy outcomes the political culture, political institutions and elite perceptions and influence intervene. Therefore the more the political system is structured to recognize and accurately pass through these preferences the stronger the relationship between socioeconomic conditions and policy outcomes. As it pertains to a determinants study the relevant questions then center around the types of political structures most likely accurately reflect the wishes of the populace, and the degree

to which those structures afford or encourage the opportunity for participation across the population.

Beginning with the political structure, at least several works have been done in this area which supports these assumptions. Both Lineberry and Fowler (1967) and Greenstone and Peterson (1968) have made distinctions between what they call reformed and unreformed city governments, and have argued that the rules governing the operations of the two are very different. The former's data indicates that reformed governments are less responsive to particularized demands of specific segments of the population. Clark's (1968) study of fifty-one communities also found some support for these assertions by empirically demonstrating that reformed governments are more centralized in their decision making processes than unreformed governments. Others, (Booms, 1966; Rodgers, 1969) have found evidence indicating that cities with reformed governmental structures spend less than those with unreformed structures. Taken together these findings do suggest that the political structure effects the types of issues political decision makers attend to and that there exists a differentiation in their responsiveness to certain types of claims from the external environment.

For these reasons measures related to the political structure should be incorporated into any future studies. While it is not the intent to describe all possibilities at this time, at a minimum these should at least include those measure of reformed versus unreformed governments employed by

Lineberry and Fowler. These variables included election type (partisan versus nonpartisan), government type (mayor-council, manager, or commission), and the constituency type (ward or at-large). Taken together the three variables would provide a clearer picture as the degree to which the local government is reformed or unreformed, and by extension should also provide a great deal of information as to how centralized the decision making process for any particular city is and the relationship to any differences in policy outcomes.

Because of the findings that reformed governmental structures, taken here to be measured by the presence of non-partisan elections and at-large constituencies, tend to spend more than non-reformed governments it is hypothesized that cities exhibiting these characteristics will have high per capita expenditures for the police than do those who do not.

The remaining commonly employed measure of reformism, city manager versus mayor or mayor and commission is believed to be related to police expenditures in a some what different fashion. In this study crime was found to be significantly related to per capita expenditures and less so to the police percentage of the budget. This implies a certain degree of rationalism within the budgeting process as regards the means-end relationship between crime and police funding. Therefore, any structure which has as one of its consequences increasing rationalism in the budgeting process, as contrasted to the predominance of political considerations,

should serve to increase the strength of the association between both per capita expenditures for the police, and the percent of the budget allocated to the police. Clearly, this increase in rationalism is one of the reasons which has been advanced for the implementation of a city manager's position. It is then hypothesized than in those cities having a city manager there will be a stronger association between measures of crime and expenditures for the police than in those cities having alternative forms of government.

Godwin and Shepard (1976) have taken notice of the hypothesized role of the political process and structure as an intervening linkage between socioeconomic cleavages and policy outcomes. The major contribution of their work has been through the further development of the four political responsiveness models first advanced by Luttbeg (1968) and is intended to clarify how the linkages associated with each model might operate. The first model is denoted as the rational-activist model wherein people are politically informed with a reasoned set of policy preferences. They then support those candidates based on how well they reflect their own preferences. The second model is the political parties model. Here the citizen must only know the positions of the political and not all candidates. Choices are then made as to which party to support. The pressure group model belong to groups dedicated to advancing a common set of preferences. In this model the group's leaders maintain watch over elected official's actions and group members need only listen to the

directives of the group's leaders. Lastly is the socialization model which has been further subdivided into two types. In the first type, the society is fairly homogeneous and leaders reflect the public's desires because they share the same preferences. The second is based on role playing by the leaders, in that they have been socialized into believing that representation entails mirroring the desires of their constituents independent of their own personal beliefs.

From their analysis of each of these models of political linkages, Godwin and Shepard have identified several variables likely to be associated with each. For the rational-activist model these variables include the educational level of the population, newspaper readership index and level of party participation. In the political parties model the degree of party competition, measures of party strength and prevalence of nonpartisan elections are key. For the interest group model indices of interest group strength, size and activity of interest group membership and percentage of the labor force which is unionized are identified. Finally, the socialization models identify the Gini coefficient of income inequality, religious heterogeneity and racial heterogeneity as being important indicators of the political process.

Clearly, the inclusion of each of the variables associated with the these model of the political process would be excessive for the determinants study being proposed



here. Furthermore, the purpose of the proposed study is not necessarily to determine exactly how the linkages operate, but rather which are important in accounting for differences in policy outcomes across cities. Because variables which measure the degree to which political structures are reformed versus unreformed have already been suggested, and because there is empirical evidence already suggesting how these structures differ as to their responsiveness to groups within the external environment, those measures associated with the interest groups model may be discounted. Likewise the previous review of the determinants literature provided little indication or reason to suspect that the variables associated with the socialization model will have any readily discernible influence upon police expenditures. For that reason they will not be given consideration here.

From the rational-activist model the level of political participation and the newspaper readership index considered earlier are advanced as being relevant indicators. In the case of the former because the degree of political participation is indicative of the range of interests represented in the political process and the greater the pressure brought to bear on politicians for particular policies. It is hypothesized that the greater range of political activists and the greater degree of political pressure exerted will result in different policies than in cities where involvement is at a significantly lower level. While these variables certainly influence the political

process, they seem more likely to be associated with the elite structure of any given municipality and will now be addressed within that context.

The presence of elites within the population is believed to influence the decision making process in much the same way as does the political process and structure. Elites, through their control of government and influence within the community have a disproportionate significance in the setting of the public agenda and determination of its outcomes. However, elite theory would seem to be most appropriate when there are readily discernible cleavages of interest between elites and the general population. An example of this might be in those factors such as zoning or urban renewal, the outcomes of which usually are of direct interest only to specific segments of the population. The problem when examining policies determining the level of funding for the police is in identification of how elites and the general public may differ. Stated another way, given that the primary role of the police is to control crime, it is difficult to conceive as to how elite desires and demands for the accomplishment of that goal would be any different than the community's as a whole.

The literature does provide some degree of support for this assumption. First, Lovrich (1975) has performed a detailed analysis of service preferences and perceptions among anglo, black, and Mexican-American citizens in Denver. While finding important differences in the preferences of

each of the groups, he also found that each ranked the importance of the police function and spending on that function at relatively the same level although, as he notes, probably for different reasons. Several other studies, working within the hypothesis if able, urban elites would use their influence to obtain resource allocations favorable to their particular geographic area of the community.

Cingranelli (1981) in his examination of service distribution in Boston found little evidence to suggest that the city administration provided services bundles tailored to different neighborhood preferences. Similarly, after analysis of police distributional patterns in Houston Mlandenka and Hill (1978) concluded that "There is no evidence to indicate that questions of resource allocation are resolved through political conflict. Rather the distributional process appears to be devoid of political content (131-132)."

In an attempt to speak to these questions we may build upon several of the findings of this study. First, it was demonstrated that there is a strong relationship between the level of crime in a community and the per capita expenditures for the police. While this relationship was not direct, being influenced by per capita income, it does support the argument that at least for the police, budgeting is a rational process with consideration being given to a set of mean-ends relationships. Thus, as crime increases more money, where available, will be spent on the police in the belief that they can reduce or hold the level of crime constant.

Secondly, this study also found that while still significant, the crime variable was less capable of explaining differences in the percentage of the budget allocated for the police. This indicates the presence of some other, different, countervailing decision rule which is in opposition to the crime per capita expenditures findings. It is in addressing this finding that the use of elite theory may be of significant value.

Typically, elites and their influences are conceptualized as being monolithic in nature, or as one group of citizens with one set of common goals. However, it is more likely that there may be many elite groups within a given population, each with their own sets of agendas as regards desired governmental actions. The ability of these differing elite groups to have their preferences addressed through the political process then becomes a central issue. For, as this ability increases, the range of activities and/or the level of funding for activities will vary in response to those pressures. The question then becomes not only who governs, but also where, when, and with what effects? (Clark, 1967).

It is then necessary to frame these issues in some sort of testable hypotheses concerning the form of the decision making structure along the dimensions of centralization versus decentralization and its effects on the allocation for the police. What is being suggested is that where there are a number of elite groups the decision making structure will be more decentralized as contrasted to where there are fewer

elite centers of power. Decentralization of governmental power would theoretically result in a greater number of needs being addressed through the budget process than where the power structure is highly centralized. Because the emphasis here is on political considerations such as coalition building, rather than on rationalistic criteria there should be two separate outcomes.

First, it is hypothesized that the more decentralized the power structure the smaller the percentage of the budget which will be devoted to the police. Decentralization means that more activities must be supported and that there will be correspondingly less monies available for any one activity even though more money may be spent overall. This later finding is supported by those of Clark (1968). Secondly, it is believed that the greater the decentralization of the government, the less strongly will the level of crime influence the level of police expenditures. The rationale for this has already been stated in the assumption that as the number of elite groups grows, government becomes more decentralized, and the criteria for decision making become increasing political in nature in contrast to rationalistic criteria. In such cases the level of crime will decrease in importance as a criterion in police budgetary decisions.

Clark (1968), in particular, has done a great deal of empirical work in the general area of community structure/community power, and decision making. Specifically he has set forth and tested a number of different measures of

centralization-decentralization for community decision making. Because of the support provided by his findings it is suggested that a number of these variables might be included in future determinants studies to test the hypotheses presented in the preceding paragraph. In particular it was found that communities that were economically diversified, using a dichotomous classification developed by Nelson (1955), and which had a high level of civic voluntary organization activity were considerable more decentralized in their decision making structures than other cities.

These then are a partial listing, but many of the most important, of variables believed to be operating within the budgetary policy making process. For the reasons stated here it is also believed that each should be given more consideration in subsequent research. Specific hypotheses related to each of these variables have been provided here and should provide direction for future research. However, in regards to at least the police, some final comments should be made concerning the development of at least the rudimentary outlines of one possible area of theory which may feasibly relate the results of determinants studies to practical budgeting behavior.

#### Practical Implications of Future Determinant Studies for the Police

As has been noted, the majority of determinants research has been basic in nature and intended more to explore and define the various issues, linkages and relationships.

Perhaps because of its focus determinants research has somewhat less utility than other avenues of exploration if one of its purposes is held to be the provision of empirical implication which might be applied by an individual department head in his or her administrative budgeting capacity. Indeed, it is more likely the the value of determinants studies lies in their clarification of the process and the various relationships of the factors effecting that process. This does not mean that practical considerations are totally absent, but rather that at this point in the development of the body of works they are not the primary focus. Still it is likely that some of the results of these efforts may be applied in at least a limited fashion to programs on a particularized basis. Because the police have been the major focal point of this study they will serve as the illustration of this final section.

First, two key points must be borne in mind. As has been presented herein the outcomes of the budgeting process are believed to be shaped by several classes of influences. These include socioeconomic conditions, elite behavior, and the political process. The budgeting process was also seen as being the division of scarce resources in a rational manner following from the articulated demands and supports generated by coalitions of actors in the external environment. Although the relative importance of the influence of these actors, as contrasted to other factors such as the level of revenue available, has yet to be ascertained, it is clear that

government in its deliberations must give due consideration to the wants of its citizens. In the same vein much the same statements may be made concerning the role of the elected official in the governing process. While much attention has been devoted to the politics of the budgetary process, the primary focus has been upon the internal operations of governmental budgeting. This has provided a great deal of information concerning the normative aspects of political aspects and the competition between programs but has done less to illuminate how factors external to the governmental entity may be employed by the administrator to advance his agencies claims to the resources available. It is within this perspective that future determinants studies may make some practical contributions.

Currently with the police related literature there has been a considerable amount of discussion as to the role of policing and in particular the degree of community participation and input in setting that role. This debate is a continuation of that begun in the 1960s in response to the political turmoil and unrest which burgeoned at that time. That turmoil led to widespread challenges concerning police operations and even questioning of their legitimacy. Consequently the police, as any organization threatened with major changes in their environment must, began to examine alternative services, service delivery, and organizational changes. It is the latter of these which is of interest here.



Within organizational theory the systems resource approach recognizes at least two model of change which are applicable to public agencies: the selection model and the adaptation model. The selection model is the more rigorous of the two and states that when the context of the external environment changes significantly, the organization has no choice but to adapt if it is to survive (Emery and Trist, 1965). Given the nature and importance of the police function to society few instances can be envisioned where the ultimate outcome of the selection model, the death of the organization, might apply.

A more likely possibility is a variation of the adaptation model, the exchange approach, which views change as a function of interorganizational linkages based upon cooperation and complementary goals (Levine and White, 1961). While this process is somewhat less direct for public service agencies than for those in the private sector it is nevertheless still valid. In the case of the police exchanges are derived from society's need (goal) for social control which the police produce as an output and in exchange for which society bases the provision of requisite inputs such as legitimacy and other more tangible resources.

The adaptation model then places a premium upon those segments of the external environment constituting what has been called the organization's task environment, or those segments which are relevant or to goal setting or goal attainment (Dill, 1958). The forms of these relationships are

determined by the content of the goals whose need for attainment shape the structure and orientation of the organization, and as such have important implications for organizational effectiveness.

Faced with the turbulent external environment and with their legitimacy called into question a number of police administrators reacted by adopting a model of policing called team policing. While this new structure contained several organizational changes recognized as means of dealing with environmental change and uncertainty such as moving decision making downward in the organization and improved information collection and processing, it was another facet which had more long range implications. This was the fact that inherent in the philosophy of team policing was the idea of increased community participation in goal setting. Although these changes were never really to take root at that time, they did act as the intellectual ancestors for community based policing movement of the 1980s.

Community based policing retains many of the facets of team policing, but is much more developed in its philosophy as to the role of the public in police goal setting. This point is illustrated by the following quotation:

Officers can demand clear public guidelines and role definitions relative to their law enforcement function. By demanding clear community guidelines the issues are raised, the decision making level is identified and all citizens are alerted to the availability of the political process to express their needs. The police are agents of the public. By demanding that the public establish clear goals and priorities the police do no more than fulfill their role and place responsibility

for establishing exactly what services are mandated and with what priorities (Trojanowicz, 1982: 6).

It is at this point of establishing priorities for service and involving the public in the political process, as it regards law enforcement, that determinants studies and community based policing have converging interests. The major thrust of much of the literature and research provided within this study has been concerned with the degree to which certain cleavages within the society as measured by socioeconomic variables gave rise to demands and supports on the political process which were then translated into policy outcomes. To the degree that future studies are successful in identifying these precipitating factors they will be of use to the police administrator who wishes to exploit them through the development of specialized community based programs addressing the underlying concerns of the public. Hopefully this will lead not only to a more efficient use of resources according to the public's desires but will also serve to increase the political support of the police which may then be translated in levels of economic support closely corresponding to actual needs and demands.

## APPENDICES

## APPENDIX A

### DESCRIPTIVE STATISTICS FOR ALL VARIABLES

APPENDIX A

DESCRIPTIVE STATISTICS FOR ALL VARIABLES

Table 1: Distribution of Sample Population by City Size

| Bar: | From: (≥) | To: (<)   | Cumul: | Percent: |       |
|------|-----------|-----------|--------|----------|-------|
| 1    | 25075     | 729731.5  | 941    | 98.845   | -Mode |
| 2    | 729731.5  | 1434388   | 947    | 99.475   |       |
| 3    | 1434388   | 2139044.5 | 949    | 99.685   |       |
| 4    | 2139044.5 | 2843701   | 949    | 99.685   |       |
| 5    | 2843701   | 3548357.5 | 951    | 99.895   |       |
| 6    | 3548357.5 | 4253014   | 951    | 99.895   |       |
| 7    | 4253014   | 4957670.5 | 951    | 99.895   |       |
| 8    | 4957670.5 | 5662327   | 951    | 99.895   |       |
| 9    | 5662327   | 6366983.5 | 951    | 99.895   |       |
| 10   | 6366983.5 | 7071640   | 952    | 100      |       |

Table 2: Descriptive Statistics for Population Variable

| Mean:     | Std. Dev.: | Std. Error: | Variance: | Coef. Var.:  | Count:     |
|-----------|------------|-------------|-----------|--------------|------------|
| 97717.312 | 293990.539 | 9520.200    | 86435110  | 300.050      | 952        |
| Minimum:  | Maximum:   | Range:      | Sum:      | Sum Squared: | # Missing: |
| 25075     | 7071639    | 7046564     | 93026001  | 9.129513     | 0          |

Table 3: Descriptive Statistics for Percent of Population 65+ Variable

| Mean:    | Std. Dev.: | Std. Error: | Variance: | Coef. Var.:  | Count:     |
|----------|------------|-------------|-----------|--------------|------------|
| 11.525   | 5.212      | .17         | 27.166    | 45.223       | 942        |
| Minimum: | Maximum:   | Range:      | Sum:      | Sum Squared: | # Missing: |
| 1.7      | 51.0       | 50.1        | 10856.7   | 150607.99    | 10         |

Table 4: Descriptive Statistics for Population Density Variable

| Mean:    | Std. Dev.: | Std. Error: | Variance:   | Coef. Var.:  | Count:     |
|----------|------------|-------------|-------------|--------------|------------|
| 4006.645 | 3494.911   | 113.271     | 1.221E7     | 87.16        | 952        |
| Minimum: | Maximum:   | Range:      | Sum:        | Sum Squared: | # Missing: |
| 52.161   | 39709.286  | 39657.105   | 3816420.771 | 2.692E10     | 0          |

Table 5: Descriptive Statistics for Per Capita Income Variable

| Mean:    | Std. Dev.: | Std. Error: | Variance:   | Coef. Var.:  | Count:     |
|----------|------------|-------------|-------------|--------------|------------|
| 7659.56  | 1893.164   | 61.358      | 3584071.042 | 24.716       | 952        |
| Minimum: | Maximum:   | Range:      | Sum:        | Sum Squared: | # Missing: |
| 3432     | 24387      | 20955       | 7291901     | 5.926E10     | 0          |

Table 6: Descriptive Statistics for Crime Rate Variable

| Mean:    | Std. Dev.: | Std. Error: | Variance:   | Coef. Var.:  | Count:     |
|----------|------------|-------------|-------------|--------------|------------|
| 7219.162 | 2983.147   | 97.612      | 8899166.738 | 41.323       | 934        |
| Minimum: | Maximum:   | Range:      | Sum:        | Sum Squared: | # Missing: |
| 125.746  | 30906.241  | 30780.496   | 6742697.276 | 5.698E10     | 16         |

Table 7: Descriptive Statistics for Percent of Population Change  
1970-80 Variable

| Mean:    | Std. Dev.: | Std. Error: | Variance: | Coef. Var.:  | Count:     |
|----------|------------|-------------|-----------|--------------|------------|
| 29.032   | 229.052    | 7.454       | 52007.909 | 785.525      | 936        |
| Minimum: | Maximum:   | Range:      | Sum:      | Sum Squared: | # Missing: |
| -27.2    | 6346.8     | 6374        | 27173.8   | 49416300     | 16         |

Table 8: Descriptive Statistics for Percent of Owner Occupied Housing Variable

| Mean:    | Std. Dev.: | Std. Error: | Variance: | Coef. Var.:  | Count:     |
|----------|------------|-------------|-----------|--------------|------------|
| 59.54    | 13.302     | .431        | 176.932   | 22.34        | 952        |
| Minimum: | Maximum:   | Range:      | Sum:      | Sum Squared: | # Missing: |
| 13.4     | 92.6       | 79.2        | 56602.3   | 3543139.63   | 0          |

Table 9: Descriptive Statistics for Percent of Budget Allocated Police Variable

| Mean:    | Std. Dev.: | Std. Error: | Variance: | Coef. Var.:  | Count:     |
|----------|------------|-------------|-----------|--------------|------------|
| 15.262   | 6.991      | .220        | 48.072    | 45.007       | 940        |
| Minimum: | Maximum:   | Range:      | Sum:      | Sum Squared: | # Missing: |
| 0        | 45.066     | 45.066      | 14345.073 | 264031.601   | 12         |

Table 10: Descriptive Statistics for Per Capita Expenditures for Police Variable

| Mean:    | Std. Dev.: | Std. Error: | Variance: | Coef. Var.:  | Count:     |
|----------|------------|-------------|-----------|--------------|------------|
| 63.255   | 26.012     | .040        | 676.644   | 41.123       | 940        |
| Minimum: | Maximum:   | Range:      | Sum:      | Sum Squared: | # Missing: |
| 0        | 230.007    | 230.007     | 55459.254 | 4396435.773  | 12         |



## APPENDIX B

### STATISTICS FOR STEPWISE REGRESSION

APPENDIX B

STATISTICS FOR STEPWISE REGRESSION

Table 1: Summary Information of Stepwise Regression on Per Capita Police Expenditures

|                   |       |
|-------------------|-------|
| F to Enter        | 4     |
| F to Remove       | 3.996 |
| Number of Steps   | 6     |
| Variables Entered | 6     |
| Variables Forced  | 7...7 |

Table 2: Step 1 with Forced Entry of Population Variable

|     |            |                 |             |
|-----|------------|-----------------|-------------|
| R:  | R-squared: | Adj. R-squared: | Std. Error: |
| .24 | .038       | .037            | 24.655      |

Table 3: Step 2 with Entry of Crime Rate Variable

|      |            |                 |             |
|------|------------|-----------------|-------------|
| R:   | R-squared: | Adj. R-squared: | Std. Error: |
| .503 | .253       | .252            | 21.962      |

Table 4: Step 3 with Entry of Per Capita Income Variable

|      |            |                 |             |
|------|------------|-----------------|-------------|
| R:   | R-squared: | Adj. R-squared: | Std. Error: |
| .609 | .371       | .369            | 20.17       |

Table 5: Step 4 with Entry of Percent of Owner Occupied Housing Variable

| R:  | R-squared: | Adj. R-squared: | Std. Error: |
|-----|------------|-----------------|-------------|
| .64 | .409       | .407            | 19.553      |

Table 6: Step 5 with Entry of Population Density Variable

| R:   | R-squared: | Adj. R-squared: | Std. Error: |
|------|------------|-----------------|-------------|
| .649 | .421       | .410            | 19.363      |

Table 7: Step 6 with Entry of Percent of Population 65+ Variable

| R:   | R-squared: | Adj. R-squared: | Std. Error: |
|------|------------|-----------------|-------------|
| .652 | .425       | .421            | 19.311      |

Table 8: Summary Information of Stepwise Regression on Percent of Budget Allocated to Police

|                   |       |
|-------------------|-------|
| F to Enter        | 4     |
| F to Remove       | 3.996 |
| Number of Steps   | 7     |
| Variables Entered | 7     |
| Variables Forced  | 7...7 |

Table 9: Step 1 with Forced Entry of Population Variable

| R:   | R-squared: | Adj. R-squared: | Std. Error: |
|------|------------|-----------------|-------------|
| .039 | .003       | .002            | 6.01        |

Table 10: Step 2 with Entry of Per Capita Income Variable

| R:   | R-squared: | Adj. R-squared: | Std. Error: |
|------|------------|-----------------|-------------|
| .210 | .047       | .045            | 6.663       |

Table 11: Step 3 with Entry of Population Density Variable

| R:   | R-squared: | Adj. R-squared: | Std. Error: |
|------|------------|-----------------|-------------|
| .260 | .072       | .069            | 6.59        |

Table 12: Step 4 with Entry of Percent of Owner Occupied Housing Variable

| R:   | R-squared: | Adj. R-squared: | Std. Error: |
|------|------------|-----------------|-------------|
| .345 | .119       | .115            | 6.413       |

Table 13: Step 5 with Entry of Population Change 1970-1980 Variable

| R:   | R-squared: | Adj. R-squared: | Std. Error: |
|------|------------|-----------------|-------------|
| .362 | .131       | .126            | 6.374       |

Table 14: Step 6 with Entry of Crime Rate Variable

| R:   | R-squared: | Adj. R-squared: | Std. Error: |
|------|------------|-----------------|-------------|
| .379 | .14        | .135            | 6.343       |

Table 15: Step 7 with Entry of Percent of the Population 65+ Variable

| R:   | R-squared: | Adj. R-squared: | Std. Error: |
|------|------------|-----------------|-------------|
| .385 | .140       | .142            | 6.317       |

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